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DEADWEIGHT LOSS AND THE AMERICAN CIVIL WAR:

THE POLITICAL ECONOMY OF SLAVERY,

SECESSION, AND EMANCIPATION

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SECESSION, AND EMANCIPATION

by

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Dedication

To Lynda Esko

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Two broad positions have dominated the history of economic thought with respect to chattel slavery. The view of the classical economists, dating back as far as Adam Smith and including a good many abolitionists, was that slavery was inefficient and therefore unprofitable. The contrasting position of the new economic historians, most closely identified with Robert Fogel and Stanley Engerman, is that slavery was profitable and therefore efficient. Both positions are partly wrong (as well as partly right). Southern slavery was indeed profitable but nevertheless inefficient; it operated like other obvious practices—from piracy through monopoly to government subsidies—where individual gains do not

translate into social benefits. In the terminology of economics, it was a system that imposed significant "deadweight loss" on the Southern economy, despite being lucrative for slaveholders.

The dissertation presents both theoretical arguments and empirical evidence for the peculiar institution's inefficiency. In the process it throws into fresh perspective many historical controversies about the antebellum South. A recognition of slavery's deadweight loss has major implications for the origins of the Civil War. Slavery's survival required extensive subsidies from government at all levels. A federal Fugitive Slave Law was among the most crucial ways that the national government socialized the system's enforcement. That is why runaway slaves were such an important ingredient in sectional strife. A comparative investigation of slavery not just within the United States but elsewhere demonstrates that, wherever slaves could easily run away, the entire system was compromised.

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Chapter 1
Slavery and Economic Thought

I

The economics of chattel slavery has intrigued writers and thinkers since at least the eighteenth century. Two basic questions have remained intimately intertwined throughout the history of economic thought with respect to this ancient institution. First, was slavery profitable? And second, was slavery efficient? By profitable, we mean profitable to individual slaveholders themselves, in the sense of offering them a reasonable prospect of monetary return (or some other material reward) comparable to what they could earn from other ventures. By efficient, in contrast, we have in mind benefits for the economy overall. Did slave labor allocate and utilize resources in ways that fostered aggregate wealth and prosperity, regardless of how unfairly distributed; in other words, did it produce goods and services as abundant and valuable as alternative labor arrangements could have? Profitability and efficiency are obviously related but still distinct. Nevertheless, economists, historians, and other commentators often have reached identical answers to both questions.[1]

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[1]Harold D. Woodman, in a review of writings on these questions, "The Profitability of Slavery: A Historical Perennial," _Journal of Southern History_, 29 (Aug 1963), 303–25, distinguishes between these two concepts by referring to slavery's profitability "as a business" versus its profitability "as a system." A later survey, Stanley L. Engerman, "The Effects of Slavery upon the Economy: A Review of the Recent Debate," _Explorations in Entrepreneurial History_, 2nd ser., 4 (Winter 1967), 71–97, also makes this distinction, but adds a third question: "[t]he viability of slavery as an economic system." By slavery's viability, Engerman turns out not to have in mind either what we are calling efficiency, nor profitability _per se_, but rather whether the business of producing slaves—either through breeding or some other mechanism—was profitable, a subsidiary question which we will consider later. We will also make our definitions of profitability and efficiency more rigorous in Chapters 2 and 3.

At one pole, many classical economists, starting with Adam Smith, contended that slave labor was inefficient and therefore usually unprofitable. Smith's economic critique of slavery appeared in 1776, within the pages of his pioneering and influential treatise, *An Inquiry Into the Nature and Causes of the Wealth of Nations*:

> The experience of all ages and nations, I believe, demonstrates that the work done by slaves, though it appears to cost only their maintenance, is in the end the dearest of any. A person who can acquire no property, can have no other interest but to eat as much, and to labour as little as possible. Whatever work he does beyond what is sufficient to purchase his own maintenance, can be squeezed out of him by violence only, and not by any interest of his own.[2]

Smith's reasoning was straightforward. The most salient economic feature of slavery was its similarity to theft. It involved a compulsory transfer from slaves to masters. Whereas free workers exchange labor for market wages, a slaveowner could force slaves to do equivalent work but grant them only a portion of the earnings in money or in kind and keep the difference. Classical economists such as Smith concluded that bound labor was *always* less physically productive than free labor, because they implicitly assumed that slavery operated like a tax on work. By coercively extracting much of the slave's income, masters significantly reduced the slave's incentive to work hard and diligently. And the tax was stiff, with an effective marginal rate approaching 100 percent, since the slaveholder

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[2]Adam Smith, *An Inquiry Into the Nature and Causes of the Wealth of Nations* (1776, reprint edn.; Indianapolis: LibertyClassics, 1976), v. 1, pp. 386–90. Also p. 98 and v. 2, pp. 683–6. A decade earlier, Smith had presented a tentative, rudimentary form of this argument in a lengthier discussion of slavery as part of his Glasgow University *Lectures on Jurisprudence* (Oxford: Clarendon Press, 1978), pp. 176–99, 450–6, 526. See particularly pp. 189–92.

could expropriate all additional income a bondsman might generate. An identical analysis informed the writings of Smith's student and compatriot in the Scottish Enlightenment, John Millar, who wrote in 1771, five years before the publication of *The Wealth of Nations*, "that men will commonly exert more activity when they work for their own benefit, than when they are compelled to labour for the benefit merely of another."[3]

But if slavery is less efficient and profitable than free labor, why had it persisted for millennia right until the time that Smith was writing? The answer given in *The Wealth of Nations* was that "[t]he pride of man makes him love to domineer, and nothing mortifies him so much as to be obliged to condescend to persuade his inferiors." In other words, a kind of conspicuous personal consumption causes employers to "prefer the service of slaves to that of freemen," but with an important *caveat*, only "[w]herever the law allows it, and the nature of the work can afford it . . ." Smith believed that slavery was a major cause of the economic stagnation in the ancient and medieval eras. By his time, however, this backward labor system could survive only in the production of such staples as sugar and tobacco, which enjoyed exorbitant returns and government protections.[4]

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[3]John Millar, *Observations Concerning the Distinction of Ranks in Society* (1771), as reprinted in William C. Lehmann, *John Millar of Glasgow, 1735–1801: His Life and Thought and his Contributions to Sociological Analysis* (Cambridge, UK: Cambridge University Press, 1960), pp. 316–7. Also consult Robin Blackburn, *The Overthrow of Colonial Slavery, 1776–1848* (London: Verso, 1988), pp. 52–3, and David Brion Davis, *The Problem of Slavery in Western Culture* (Ithaca, NY: Cornell University Press, 1966), pp. 435–8.

[4]Smith, *The Wealth of Nations*, v. 1, p. 388. This LibertyClassics edition is an exact reproduction of the Oxford University Press annotated edition, the footnotes of which include related selections from Smith's lectures, an early draft of *The Wealth of Nations*, and other of his writings.

A more elaborate, twentieth–century statement of the same argument graces the writings of Austrian economist Ludwig von Mises, a colleague of the Nobel–Prize winning Friedrich A. von Hayek. *Human Action*, Mises's magnum opus, contains a section on "The Work of Animals and of Slaves" maintaining that "[e]ven the crudest and dullest people achieve more when working of their own accord than under the fear of the whip." The consequence according to Mises was:

> Servile labor could always be utilized only where it did not have to meet the competition of free labor. . . . [S]ystems of unfree labor were sheltered by political institutions against the competition of enterprises employing free workers. In the plantation colonies the high costs of immigration and the lack of sufficient legal and judicial protection of the individual against the arbitrariness of government officers and the planter aristocracy prevented the emergence of a sufficient supply of free labor and the development of a class of independent farmers.

Eventually slavery "disappeared because it could not stand the competition of free labor; its unprofitability sealed its doom in the market economy."[5]

Not every classical economist, however, was as emphatic as Smith and Mises in equating profitability and efficiency. Perhaps the first to separate the two questions was the French Physiocrat, Anne Robert Jacques Turgot. Turgot's views on slavery are often thought to anticipate those of Adam Smith, because the initial edition of *Reflections on the Formation and the Distribution of Riches*,

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[5]Ludwig von Mises, *Human Action: A Treatise on Economics*, 3rd rev. edn. (Chicago: Henry Regnery, 1966), pp. 628–34. The first, German edition of this work, *Nationalökonomie*, was published in Geneva in 1940. Mises was building on a discussion that first appeared in the 1927 German edition of his *Liberalism: A Socio–Economic Exposition* (Kansas City: Sheed Andrews and McMeel, 1978), pp. 20–3.

serialized in the French Physiocratic journal, *Éphémérides du citoyen*, in 1770,
was altered by Turgot's editor, friend, and biographer, Du Pont de Nemours. Du
Pont expanded Turgot's single section on slavery into three, adding to Turgot's
moral condemnation of the institution statements that it was also unprofitable to
masters. Turgot chided his heavy–handed editor in a series of letters. Agreeing
that slavery was, in effect, always inefficient, he denied that its unprofitability
logically followed:

> I will content myself with simply telling you this: that no one can argue
> from what I have said that slavery was good for any society, even in its
> infancy. As to individuals who have slaves, that is another matter. I should
> be glad to think you are right in maintaining that slavery is for no one's
> advantage, for it is an abominable and barbarous injustice; but I very much
> fear that you are mistaken, and that this injustice may sometimes be useful
> to the man that perpetuates it.[6]

A later French economist, Jean-Baptiste Say, was quite explicit in his
rejection of Smith's view of bondage's profitability. In Say's *Treatise on Political
Economy*, the first edition of which appeared in 1803, he denied the claim "that
the labour of the slave is dearer and less productive than that of the freeman."
Because the master can ensure that "the consumption of a slave must be less than

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[6]Anne Robert Jacques Turgot, *Reflections on the Formation and the Distribution of Riches*, trans.
by W. J. Ashley (1770; reprint edn., New York: Macmillan, 1898), pp. 111–2. Also compare pp.
viii–ix, 18–21; Edward Derbyshire Seeber, *Anti–Slavery Opinion in France during the Second
Half of the Eighteenth Century* (Baltimore: Johns Hopkins Press, 1937), pp. 90–109; and Davis,
The Problem of Slavery in Western Culture, pp. 428–33. Subsequent writers who were misled by
Du Pont's alterations of Turgot's original text include Jean-Baptiste Say, *A Treatise on Political
Economy, or the Production, Distribution, and Consumption of Wealth*, trans. from the 4th French
edition by C. R. Prinsep (1803; reprint edn., Philadelphia: Claxton, Remsen & Haffelfinger, 1880),
p. 206; and Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860*
(Washington: Carnegie Institution, 1933), v. 1, p. 462.

that of a free workman," slavery could lead to "exorbitance of profit."

Nonetheless, this "vicious system of production, resulting from this derangement, opposes the introduction of a better plan of industry," making "all progress in the arts in Brazil and other settlements of America as utterly hopeless, while slavery shall continue to be tolerated."[7]

The renowned British economist, John Stuart Mill, also had doubts about Smith's conclusions. Mill's analysis of slavery in *Principles of Political Economy*, which went through seven editions between 1848 and 1871, was complex. While agreeing that "[i]t is a truism to assert, that labour extorted by fear of punishment is inefficient and unproductive" and admitting that the "unproductiveness and wastefulness of the industrial system in the Slave States is instructively displayed in the valuable writings of Mr. [Frederick Law] Olmsted," Mill pointed out that it is also "true that in some circumstances human beings can be driven by the lash to attempt, and even to accomplish, things which they would not have undertaken for any payment which it could have been worth while to an employer to offer them." Moreover, "[w]hether the proprietors themselves would lose by the emancipation of their slaves, is a different question from the comparative effectiveness of free and slave labour to the community" and admits of no "universal solution," varying with conditions in the labor market. Yet Mill remained "certain that slavery is incompatible with any high state of the arts of

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[7]Say, *A Treatise on Political Economy*, pp. 206–8. But for some indication that Say may have later modified his views, see his reply included with Adam Hodgson, *A Letter to M. Jean-Baptiste Say, on the Comparative Expense of Free and Slave Labor*, 2nd edn. (London: Hatchard and Son; J. and J. Arch, 1823).

life, and any great efficiency of labour."[8] In short, classical economists, from Smith to Mill, all shared a conviction that chattel slavery was inefficient but disagreed over its profitability.

<div align="center">II</div>

Having surveyed the theoretical views of classical economists concerning chattel slavery, let us see how their views came to be applied concretely to the pre–Civil War United States. Because the nineteenth century's antislavery movement in Britain and the United States was a manifestation of the same classical–liberal ideology and Enlightenment thought that had spawned Adam Smith, it is no surprise that abolitionists were receptive to Smith's analysis of slavery.[9] In the 1833 parliamentary debates over emancipation in the British West Indies, James Silk Buckingham from Sheffield offered the House of Commons proofs both "of the superior productiveness and efficiency of free labour over slave labour wherever it had been tried" and of the fact "that free labour was

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[8]John Stuart Mill, *Principles of Political Economy: With Some of Their Applications to Social Philosophy*, 7th edn. (1871, reprint edn.; London: Longmans, Green, 1909), pp. 251–4. This reprint of Mill's last revision, edited by W. J. Ashley, notes all differences with the previous six editions.

[9]Adam Smith's role in antislavery's development is revealed in David Brion Davis, *The Problem of Slavery in the Age of Revolution, 1770–1823* (Ithaca, NY: Cornell University Press, 1975), pp. 350–6, and Davis, *The Problem of Slavery in Western Culture*, pp. 433–5. Howard Temperley, "Capitalism, Slavery and Ideology," *Past and Present*, 75 (May 1977), 94–118; Temperley, "Anti–Slavery as a Form of Cultural Imperialism," in Christine Bolt and Seymour Drescher, eds., *Anti–Slavery, Religion, and Reform: Essays in Memory of Roger Anstey* (Folkestone, Kent, and Hamden, CT: Wm Dawson & Sons—Archon Books, 1980), pp. 341–6; David Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade* (New York: Oxford University Press, 1987), pp. 17–28; David Turley, *The Culture of English Antislavery, 1780–1860* (London: Routledge, 1991), pp. 25–6, 35–7, 147–8, 230–2; Seymour Drescher, "Free Labor vs. Slave Labor: The British and Caribbean Cases," in Stanley L. Engerman, ed., *The Terms of Labor: Slavery, Serfdom, and Free Labor* (Stanford, CA: Stanford University Press, 1999); and Drescher, "Abolitionist Expectations: Britain," *Slavery and Abolition*, 21 (Aug 2000), 41–66, all emphasize the role of the free–labor ideology in the development of British abolitionism.

cheaper than slave labour," while at the 1840 World Anti–Slavery Convention in London, delegates passed a resolution declaring free labor cheaper and more profitable than slave labor.[10]

Indeed, most opponents of slavery embraced a free–labor ideology that not only condemned human bondage but also accepted the justice of market transactions for workers, despite resulting inequalities. Although William Lloyd Garrison and other American abolitionists often promoted such diverse reforms as women's rights, international peace, and the elimination of capital punishment, their relations with the North's fledgling labor movement always remained strained. In *The Liberator*'s first issue, Garrison denounced attempts "to enflame the minds of our working classes against the more opulent. . . . We are the friends of reform; but this is not reform; which in curing one evil, threatens to inflict a thousand others."[11] New York abolitionist William Jay wrote a pamphlet in the 1830s predicting that after emancipation "the value of negro labor, like all other vendible commodities, will be regulated by supply and demand: and justice be done both to the planter and his laborers."[12] While this attachment to free labor did not prompt abolitionists on either side of the Atlantic to show great concern about whether slavery was lucrative for the slaveholders, it did lead them to an almost universal belief that slavery stifled economic prosperity. "[I]mmediate and

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[10]*Hansard's Parliamentary Debates*, 3rd ser., 18 (7 Jun 1833), 476, and for the 1840 World Anti–Slavery Convention, see David Brion Davis, *Slavery and Human Progress* (New York: Oxford University Press, 1984), p. 191.

[11]*The Liberator*, 1 (1 Jan 1831), 3.

[12]William Jay, *An Inquiry Into the Character and Tendency of the American Colonization and American Anti–Slavery Societies*, 4th edn. (New York: R. G. Williams, 1837), p. 198.

general emancipation," proclaimed the Declaration of Sentiments of the American Anti–Slavery Society, written by Garrison and adopted in December of 1833, "by infusing motives into their [the former slaves'] breasts, would make them doubly valuable to the masters as free laborers."[13]

Acceptance of the free–labor ideology was even more pronounced in the United States among members of both the Free Soil Party, formed in 1848, and its political descendant, the Republican Party.[14] "Enslave a man," declared Horace Mann, during his brief term as a Free Soil Congressman, in an argument that almost perfectly mirrored Smith, "and you destroy his ambition, his enterprise, his capacity. In the constitution of human nature, the desire of bettering one's condition is the mainspring of effort."[15] When an expatriate white Southerner

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[13]*The Liberator*, 3 (14 Dec 1833), 198. One of the best discussions of the economic views of American abolitionists is Eric Foner, "Abolitionism and the Labor Movement in Ante–bellum America," in Foner, *Politics and Ideology in the Age of the Civil War* (Oxford: Oxford University Press, 1980), pp. 57–76. Other treatments include Woodman, "The Profitability of Slavery," 304–8; Aileen S. Kraditor, *Means and Ends in American Abolitionism: Garrison and His Critics on Strategy and Tactics, 1834–1850* (New York: Random House, 1969), pp. 242–55; Ronald G. Walters, *The Antislavery Appeal: American Abolitionism After 1830* (Baltimore: Johns Hopkins University Press, 1976), ch. 7; Jonathan A. Glickstein, "'Poverty is not Slavery': American Abolitionists and the Competitive Labor Market," in Lewis Perry and Michael Fellman, eds., *Antislavery Reconsidered: New Perspectives on the Abolitionists* (Baton Rouge: Louisiana State University Press, 1979), pp. 195–218; and Louis S. Gerteis, *Morality & Utility in American Antislavery Reform* (Chapel Hill: University of North Carolina Press, 1987), pp. 62–75.

[14]The premier work on Republican ideology is of course Eric Foner, *Free Soil, Free Labor, Free Men: The Ideology of the Republican Party before the Civil War* (London: Oxford University Press, 1970). Also consult Foner's article on "Free Labor and Nineteenth–Century Political Ideology," in Melvyn Stokes and Stephen Conway, eds., *The Market Revolution in America: Social, Political, and Religious Expressions, 1800–1880* (Charlottesville: University Press of Virginia, 1996).

[15]*Congressional Globe*, 30th Cong., 1st sess. (30 Jun 1848), appendix, p. 835. Foner, *Free Soil, Free Labor, Free Men*, p. 46, mistakenly attributes this quotation to Horace Greeley. The misattribution is repeated in James M. McPherson, *Battle Cry of Freedom: The Civil War Era* (New York, Oxford University Press, 1988), p. 96.

named Hinton Rowan Helper in the summer of 1857 published *The Impending Crisis of the South*, comparing the economic performance of the free states with that of the slave states, Republican politicians turned the book into a campaign document. Helper, in spite of his intense hatred for blacks, strove to show with an abundance of statistics that slavery retarded economic growth. "[T]he South, at one time the superior of the North in almost all the ennobling pursuits and conditions of life, has fallen far behind her competitor, and now ranks more as the dependency of a mother country than as the equal confederate of free and independent States."[16] An eight–column review in Horace Greeley's *New York Tribune* boosted sales to thirteen thousand copies, and Helper's book managed to set off a congressional struggle in 1859 that delayed choice of the Speaker of the House for two months. Republicans also eagerly imbibed the first–hand descriptions of southern life that landscape architect Frederick Law Olmsted published in the *New York Times* and reprinted and expanded into three books. Olmsted reported not only that the peculiar institution impoverished most Southerners, black and white, but also that only the top 2 percent of slaveholders actually profited from it.[17]

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[16]Hinton Rowan Helper, *The Impending Crisis of the South: How to Meet It* (1857; reprint edn., Cambridge, MA: Harvard University Press, 1968), p. 24. Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), pp. 161–9, offer a withering critique of Helper's use of statistics.

[17]Frederick Law Olmsted, *A Journey in the Seaboard Slave States: With Remarks on Their Economy* (New York: Dix & Edwards, 1856); Olmsted, *A Journey through Texas or, A Saddle–Trip on the Southwestern Frontier* (New York: Dix, Edwards, 1857); and Olmsted, *A Journey in the Back Country* (New York: Mason Brothers, 1860). Olmsted combined and abridged the three volumes in one: *The Cotton Kingdom: A Traveller's Observations on Cotton and Slavery in the American Slave States*, (1861, reprint edn.; New York: Alfred A. Knopf, 1953). The reprint edition of this single volume includes an introduction by Arthur M. Schlesinger that, among other things, correlates the abridgment's contents with the original three volumes.

The classical analysis reached its apogee in a book–length indictment of American slavery from John Elliott Cairnes, an eminent Irish economist and abolitionist. His friend and mentor, John Stuart Mill, had encouraged Cairnes to publish his volume, *The Slave Power*, which first appeared in 1862, in the midst of the American Civil War, and endeavored to explain that conflict to a British audience. A revised edition followed one year later. Cairnes attributed "the economical defects of slave labour" to three factors: "it is given reluctantly; it is unskillful; it is wanting in versatility." As a result, "slavery has acted injuriously on every class and every interest in the South, and . . . its continued maintenance is absolutely incompatible with the full development of the resources of the country."[18] But Cairnes did not go all the way with Smith in arguing that slave labor was necessarily less profitable than free labor. In fact, he was extremely careful to distinguish profitability from efficiency:

> . . . the profitableness which has been attributed to slavery is profitableness exclusively from the point of view of the proprietor of slaves. . . . But those who are acquainted with the elementary principles which govern the distribution of wealth, know that . . . the community as a whole may be impoverished through the very same means by which a portion of its number is enriched. The economic success of slavery, therefore, is perfectly consistent with the supposition that it is prejudicial to the material well–being of the country where it is established.[19]

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[18]John Elliott Cairnes, *The Slave Power: Its Character, Career, and Probable Designs: Being an Attempt to Explain the Real Issues Involved in the American Contest*, 2nd edn. (London: Macmillan, 1863), pp. 44, 160, 181. For background on Cairnes and the reception to his book on both sides of the Atlantic, see Adelaide Weinberg, *John Elliot[t] Cairnes and the American Civil War: A Study in Anglo–American Relations* (London: Kingswood Press, [1968]). Fogel and Engerman, *Time on the Cross*, v. 1, pp. 181–90, critique Cairnes's economic analysis.

[19]Cairnes, *The Slave Power*, p. 65.

A combination of abundant, fertile land, of labor–intensive cultivation, and of economies of scale that favored large plantations had made human bondage initially lucrative for American planters. On whether slavery was still profitable in the South, Cairnes did not commit himself, yet he did insist that confining the peculiar institution within existing territorial limits would bring about its destruction; "[a] constant supply of fresh soils of high fertility, therefore, becomes, an indispensable requisite for the permanent industrial success of such [slave] societies"[20]

Convinced of free labor's economic superiority, abolitionists and Republicans optimistically expected with the end of the Civil War that emancipation would be an economic boon to the defeated South.[21] Blacks, once free, would work more productively, and southern output consequently would rise over the long run. This conviction had already received one empirical shock in the West Indies. Britain's compensated emancipation in 1834, followed by France's and Denmark's abolition of slavery in 1848, had seemingly led to a disastrous economic decline for these sugar producing colonies. But abolitionists in both Britain and the United States had explained away this outcome by pointing to such other factors as the elimination of British protective duties, a decline in sugar production that allegedly pre–dated emancipation, and an 1857 rebound in sugar

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[20]*Ibid.*, p. 180.

[21]Heather Cox Richardson, *The Greatest Nation of the Earth: Republican Economic Policies during the Civil War* (Cambridge, MA: Harvard University Press, 1997), pp. 209–50; and Eric Foner, "Reconstruction and the Crisis of Free Labor," in *Politics and Ideology in the Age of the Civil War*.

production on some islands.[22] After a similar economic decline became apparent in the post–war South, however, such excuses would no longer suffice. The continuing backwardness of the postwar Southern economy contributed to the Northern disillusionment with Republican Reconstruction policies. Rather than abandon confidence in free labor, many less doctrinaire opponents of slavery reluctantly concluded that, instead, maybe blacks were as lazy and shiftless as southern slaveholders had always claimed.[23]

<div align="center">III</div>

With this new overlay of racism, the classical economists' assessment found its way in 1918 into the first scholarly, historical study of antebellum slavery: Ulrich Bonnell Phillips's *American Negro Slavery*. A Georgia native and partisan of the Old South who had become a Yale history professor, Phillips portrayed slavery as a civilizing influence on inferior blacks. He also employed

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[22]James M. McPherson, "Was West Indian Emancipation a Success?: The Abolitionist Argument during the American Civil War," *Caribbean Studies*, 4 (Jul 1964), 28–34; Howard Temperley, *British Antislavery, 1838–1870* (Columbia: University of South Carolina Press, 1972), pp. 112–20; William A. Green, *British Slave Emancipation: The Sugar Colonies and the Great Experiment, 1830–1865* (Oxford: Clarendon Press, 1976), pp. 229–60; David Eltis, "Abolitionist Perceptions of Society after Slavery," in James Walvin, ed., *Slavery and British Society, 1776–1846* (London: Macmillan, 1982), pp. 195–213; Gerteis, *Morality & Utility in American Antislavery Reform*, pp. 175–9; Drescher, "Free Labor vs. Slave Labor: The British and Caribbean Cases," and Drescher, "Abolitionist Expectations: Britain." The best survey of the economic evidence is Stanley L. Engerman, "Economic Adjustments to Emancipation in the United States and British West Indies," *Journal of Interdisciplinary History*, 13 (Autumn 1982), 191–220. See also Engerman, "Slavery and Emancipation in Comparative Perspective: A Look at Some Recent Debates," *Journal of Economic History*, 46 (Jun 1986), 317–39.

[23]John G. Sproat, *"The Best Men": Liberal Reformers in the Gilded Age* (New York: Oxford University Press, 1968), pp. 29–36; James M. McPherson, "The Antislavery Legacy: From Reconstruction to the NAACP," in Barton J. Bernstein, ed., *Towards a New Past: Dissenting Essays in American History* (New York: Random House, 1968); and McPherson, *The Abolitionist Legacy: From Reconstruction to the NAACP* (Princeton, NJ: Princeton University Press, 1975), pp. 53–80. We review the basic numbers on the South's postwar economic performance in Chapter 7.

trends in slave and cotton prices to support his assertion that slavery had become

unprofitable. Cotton plantations, in this portrait, were decreasingly remunerative

enterprises to which Southerners clung for cultural reasons:

> The slaveholding régime kept money scarce, population sparse and land
> values accordingly low; it restricted the opportunities of many men of both
> races, and it kept many of the natural resources of the Southern country
> neglected. . . . Plantation slavery had in strictly business aspects at least as
> many drawbacks as it had attractions. But in the large it was less a
> business than a life; it made fewer fortunes than it made men.[24]

Phillips, in other words, shared both conclusions of the harshest classical

critics of slavery: the South's peculiar institution was inefficient *and* unprofitable.

But his racism prevented him from sharing the classical reasoning behind these

conclusions. Viewing the Negro as an innately ignorant savage, Phillips could not

possibly agree with Smith and Cairnes that bondage's coercive disincentives

caused black workers to be unproductive. "The negro of himself, by reason of his

inherited inaptitude, was inefficient as a self–directing laborer in civilized

industry," and therefore "Mr. Cairnes and others make a great mistake when they

attribute his inefficiency and expensiveness altogether to the one incident of

regulation." Rather than slavery's force, Phillips blamed two other factors for

holding back the southern economy. First, planters could not gain from training

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[24]U. B. Phillips, *American Negro Slavery: A Survey of the Supply, Employment and Control of Negro Labor as Determined by the Plantation Regime* (New York: D. Appleton, 1918), p. 401. Phillips's other writings on the economics of American slavery are in *Life and Labor in the Old South* (Boston: Little, Brown, 1929) and *The Slave Economy of the Old South: Selected Essays in Economic and Social History* (Baton Rouge: Louisiana State University Press, 1968). Robert William Fogel and Stanley L. Engerman's most developed criticism of Phillips is presented in "The Economics of Slavery," from Fogel and Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971).

their slaves for those skilled occupations for which some of them might become qualified. Second, because slave labor was capitalized, it absorbed southern saving and diverted it from other investments. "Individual profits, as fast as made, went into the purchase of labor, and not into modern implements or land improvements" wrote the author of *American Negro Slavery* in an earlier journal article.[25] These alternative arguments, it should be noted, reinforced a sharp distinction that Phillips made between the slave system and the plantation system. He believed that the plantation was a highly effective way to organize black labor and had helped the Old South compensate for some of slavery's deficiencies. The collapse of the plantation system during the chaos of Republican Reconstruction explained for Phillips the South's continued backwardness, despite the disappearance of slavery.

Phillips's work inspired several state studies that confirmed his evaluation of slavery's profitability, the most important of which was Charles Sackett Sydnor, *Slavery in Mississippi*.[26] Actually the most severe implication of Phillips's evidence on price trends for cotton and slaves was that slave prices needed to fall to equilibrate returns with other investments, as Phillips himself fully appreciated. Yet Charles W. Ramsdell came along and in an influential 1929 article concluded that therefore slavery had been economically doomed. Like

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[25]Ulrich B. Phillips, "The Economic Cost of Slaveholding in the Cotton Belt," *Political Science Quarterly*, 20 (Jun 1905), 270–2, reprinted in Phillips, *The Slave Economy of the Old South*, pp. 129–31.

[26]Charles Sackett Sydnor, *Slavery in Mississippi* (New York: D. Appleton–Century, 1933). Fogel and Engerman, *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), pp. 178–85, more exhaustively review the work of the Phillips school.

Cairnes, Ramsdell identified territorial expansion as the driving force that had kept the peculiar institution viable. But by 1860 it "had reached its limits in both profits and land." This judgment, in turn, helped support a revisionist interpretation of the Civil War as an unfortunate and avoidable calamity. For if slavery was passing away of its own accord, then the subsequent four years of soul–wrenching conflict had been utterly unnecessary.[27]

A later historian of the Old South, Eugene Genovese, reiterated much of Phillips's analysis in his 1965 work, *The Political Economy of Slavery*. "The South's greatest economic weakness was the low productivity of its labor force," he affirmed; "The slaves worked indifferently." But in the process Genovese thoroughly stripped off Phillips's racist veneer and replaced it with a solid coat of Marxism. This permitted him to reject emphatically the revisionist coda—that because slavery was economically moribund it was already doomed to a peaceful demise. Indeed, the very precapitalist, seigneurial values that had induced planters to accumulate human chattel despite declining economic returns is what drove

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[27]Charles W. Ramsdell, "The Natural Limits of Slavery Expansion," *Mississippi Valley Historical Review*, 16 (Sep 1929), pp. 151–71. Proponents of such a revisionist interpretation of the Civil War include Avery O. Craven, *The Repressible Conflict, 1830–1861* (University: Louisiana State University Press, 1929); James G. Randall, "A Blundering Generation," *Mississippi Valley Historical Review*, 27 (Jun 1940), 3–28 [reprinted in Randall, *Lincoln: The Liberal Statesman* (New York: Dodd, Mead, 1947)]; and Bruce Catton, *The Centennial History of the Civil War*, v. 1, *The Coming Fury* (New York: Simon & Schuster, 1961). David Donald gives an institutional variation on revisionism in "An Excess of Democracy: The American Civil War and Social Process," from his collection, *Lincoln Reconsidered: Essays on the Civil War Era*, 2nd edn. (New York: Random House, 1956), which faults the extreme decentralization in antebellum America for its failure to provide sufficient institutional bonds between the sections. Fogel and Engerman point out in "The Economics of Slavery," pp. 314–8, 329–31, that Ramsdell actually propounded two contradictory theses. Although widely interpreted as claiming that slavery was moribund because, as suggested in his article title, it needed to expand into new lands, the main evidence he pointed to was an alleged fall in cotton prices induced by an *increase* in the amount of cultivated land per slave.

them to a desperate war to preserve this patriarchal system. "Whereas in the North people followed the lure of business and money for their own sake, in the South specific forms of property carried the badges of honor, prestige, and power."[28]

On profitability, Genovese appeared ambivalent but dismissed the question as unimportant. He did unequivocally agree with Cairnes and Ramsdell about the system's need to expand into new lands. Predictably, this then–Marxist historian (who has since recanted) avoided any celebration of the economics of free labor and instead explained slavery's inefficiency with a grab bag of alternative causes. Among them were:

> A low level of capital accumulation, the planters' high propensity to consume luxuries, a shortage of liquid capital aggravated by the steady drain of funds out of the region, the low productivity of slave labor, the need to concentrate on a few staples, the anti–industrial, anti–urban ideology of the dominant planters, [and] the reduction of Southern banking, industry, and commerce to the position of auxiliaries of the plantation economy.

Genovese put special stress on the skewed income distribution in the antebellum slave states. This allegedly discouraged the development of internal markets by limiting the effective demand for manufactured goods to wealthy planters. At the same time, he claimed that excessive consumption on the part of

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[28]Eugene D. Genovese, *The Political Economy of Slavery: Studies in the Economy and Society of the Slave South* (New York: Random House, 1965), pp. 26, 28. Parts of Genovese's book had appeared earlier as journal articles, most notably "The Significance of the Slave Plantation for Southern Economic Development," *Journal of Southern History*, 27 (Nov 1962), 422–37. Robert William Fogel sharply questioned the economic reasoning within this article in "The Specification Problem in Economic History," *Journal of Economic History*, 23 (Sep 1967), 284–9, while Gordon Tullock offered a scathing review of the entire book in "The Political Economy of Slavery: Genovese and Davis," *Left and Right*, 3 (Spring–Summer 1967), 5–16.

the planters dampened saving and capital accumulation. Both factors made the exporting, agrarian South a colonial dependency of outside economies, caught "in a dilemma similar to that facing underdeveloped countries today," which of course also accounted in Genovese's opinion for the South's poor economic performance after the elimination of slavery.[29]

A technically sophisticated, modern statement of the classical position on antebellum slavery appears in the work of Gavin Wright, most notably his 1978 book, *The Political Economy of the Cotton South*.[30] Employing the tools of the new economic history, Wright's portrait of the Old South is *sui generis* in many respects, and we will discuss some of those respects in later chapters. Even though he does not doubt that slaves were profitable investments in the decades leading up to the Civil War, Wright shares with proponents of the classical analysis the view that only special conditions have historically permitted the economic survival of a fundamentally backward institution. For Adam Smith the condition was most likely political protection (as it was for Mises) or conspicuous consumption (as it was for Phillips); while for Cairnes, Ramsdell, and Genovese

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[29]Genovese, *The Political Economy of Slavery*, pp. 158, 165.

[30]Gavin Wright, *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: W. W. Norton, 1978), pp. 128–57. Wright is even more explicit in "Prosperity, Progress, and American Slavery," in Paul A. David, *et. al.*, *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery* (New York: Oxford University Press, 1976). Robert Higgs's skeptical review of *The Political Economy of the Cotton South* was published in the *Journal of American History*, 66 (Jun 1979), 153. Many of Wright's arguments were anticipated in Morton Rothstein, "The Antebellum South as a Dual Economy: A Tentative Hypothesis," *Agricultural History*, 41 (Oct 1967), 373–82; Marvin Fischbaum and Julius Rubin, "Slavery and the Economic Development of the American South," *Explorations in Entrepreneurial History*, 2nd ser., 6 (Fall 1968), 116–27; and Heywood Flesig, "Slavery, the Supply of Agricultural Labor, and the Industrialization of the South," *Journal of Economic History*, 36 (Sep 1976), 572–97.

the condition was territorial expansion, a thesis that Wright convincingly refutes by documenting the abundance of unexploited cotton land as of 1860. For him, the international marketplace was what allowed the South's peculiar institution to flourish. The worldwide demand for cotton was expanding so rapidly that it stimulated exorbitant returns (another possible prop that Smith suggested). Yet slavery just as assuredly retarded balanced economic development within the southern states. Moreover, the growth of cotton demand was destined to slow, Wright points out. Thus for somewhat different reasons, he ends up vindicating both Phillips's claim that slave prices were unsustainably high in 1860 and Ramsdell's claim that the institution would thereafter have declined—with an explanation for the South's postwar economic decline in the bargain. As Wright revealed two years before publication of *The Political Economy of the Cotton South*:

> My research on the southern economy over the past several years has quite
> unexpectedly led me to an appreciation of the essential correctness of the
> insights of many of the traditional interpreters of the slave South. I have
> argued that Phillips was right in asserting that slaves were overpriced in
> 1860; that Ramsdell was right in maintaining that slaveowners faced an
> impending era of low cotton prices and capital losses on slaves; and that
> Genovese . . . and others were right in suggesting a long–run
> incompatibility between slavery and modern urban–industrial society.
> These writers frequently fell into error when they claimed to observe the
> effects of these internal contradictions before 1861; but the contradictions
> were there nonetheless.[31]

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[31]Wright, "Prosperity, Progress, and American Slavery," p. 332.

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IV

Whereas such classical economists as Adam Smith and Ludwig von Mises viewed slavery as generally both inefficient and unprofitable, the contrasting extreme is most closely identified with a post–World War II academic fashion known as the "new economic history," or in fancier terms, "cliometrics." Many new economic historians have concluded that slave labor was often profitable and very efficient. The most notorious work in this school remains Robert William Fogel and Stanley L. Engerman's *Time on the Cross*.[32] Well–subsidized with government grants, backed up by an army of research assistants, and relying on what were then the latest computer techniques to analyze mountains of data, this 1974 bestseller consisted of a basic volume of readable text and a supplementary volume of evidence and methods. Yet *Time on the Cross* eventually bore "a virtual avalanche of scholarly criticism," which in the words of the late Jonathan Hughes, "in fineness as well as vigor and volume has rarely been known in the scholarship of economic history."[33]

Fogel and Engerman had been fellow graduate students at Johns Hopkins University, studying under Simon Kuznets, one of the pioneers of national income accounting.[34] They openly set out to demolish what they called the "traditional

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[32](Boston: Little, Brown, 1974). Many of *Time on the Cross*'s major conclusions were prefigured in Fogel and Engerman's earlier article, "The Economics of Slavery," a more limited, cautious, and precise presentation.

[33]Jonathan Hughes, *American Economic History*, 3rd edn., (New York: HarperCollins, 1990), pp. 231–2.

[34]Some personal details on their early collaboration can be gleaned from Stanley L. Engerman, "Robert William Fogel: An Appreciation by a Coauthor and Colleague," in Claudia Goldin and

interpretation" of American slavery. But other scholars had already anticipated many of their revisions. Back in 1933, Lewis Cecil Gray produced for the Carnegie Institution of Washington his two–volume *History of Agriculture in the Southern United States to 1860*, a work of such ponderous and overwhelming scholarship that even today there is hardly an aspect of the antebellum agrarian South on which it is not the first, and sometimes the last, word. Gray wrote fifteen years after the appearance of Phillips's *American Negro Slavery*, but his racism was almost as virulent:

> The mental instability of plantation Negroes—the impulsiveness and immediacy of action, incapacity for constant and controlled attention, and lack of constructive power and continuous effort toward remote ends—was the foundation of their incapacity for self–direction, and accounts for their frequent failures as independent farmers and for the unfortunate immediate results of emancipation in the South and the West Indies.[35]

Yet Gray suffered no illusions about slavery's lack of profitability, arguing that it had "an irresistible ability to displace free labor" in the production of southern staples because it "possessed certain positive advantages." Gray was also one of the first to demonstrate that the slave states were not running out of fertile land in 1860, although he did believe that the peculiar institution had retarded southern industrialization. Because the South was "subject to the disadvantages characteristic of a predominantly agricultural country," slavery presented "the near–paradox of an economic institution competitively effective

Hugh Rockoff, eds., *Strategic Factors in Nineteenth Century American Economic History: A Volume to Honor Robert W. Fogel* (Chicago: University of Chicago Press, 1992).

[35]Gray, *History of Agriculture in the Southern United States*, v. 1, pp. 465–6.

under certain conditions, but essentially regressive in its influence on the socio–economic evolution of the section where it prevailed."[36]

Robert Russel in a *Journal of Southern History* article appearing five years later went still further in reversing the classical assessment. While admitting that the southern economy lagged behind that of the North, he flatly denied that slavery was the culprit. Such prosaic factors as climate, topography, and natural resources were responsible. Russel also put to rest Phillips's crude version of the argument that purchasing slaves absorbed southern savings, pointing out that any money so used was merely transferred from one Southerner to another.[37] Then in the early forties, within the pages of the same journal, Thomas P. Govan exposed accounting errors that Phillips and his students had made in estimating the returns to slaveowners. After Govan redid the calculations properly, slave ownership emerged as highly lucrative.[38] A less ambitious revision, done by Robert Worthington Smith in the pages of *Agricultural History* in 1946, arrived at the same rejection of Phillips's conclusions on profitability.[39]

By 1956 Kenneth M. Stampp had given us *The Peculiar Institution*, still one of the best general works on American slavery. Stampp—not an economist

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[36]*Ibid.*, v. 1, pp. 471, 474, v. 2, pp. 940–2.

[37]Robert R. Russel, "The General Effects of Slavery upon Southern Economic Progress," *Journal of Southern History*, 4 (Feb 1938), 34–54. Also Russel, "The Effects of Slavery on Nonslaveholders in the Ante–Bellum South," *Agriculture History*, 15 (Apr 1941), 112–26.

[38]Thomas P. Govan, "Was Plantation Slavery Profitable," *Journal of Southern History*, 8 (Nov 1942), 513–35.

[39]Robert Worthington Smith, "Was Slavery Unprofitable in the Ante–Bellum South?" *Agricultural History*, 20 (Jan 1946), 62–4.

but one of a new breed of neo–abolitionist historians who were discarding the racial stereotypes of the past—replaced the benign slave regime presented in Phillips's *American Negro Slavery* with a harsher picture. He also insisted that human bondage in the South had been not only profitable, agreeing with Gray and Govan, but also quite viable. To the classical argument that bondage reduces the incentive to work, Stampp lucidly responded: "Slavery's economic critics overlooked the fact that physical coercion, or the threat of it, proved to be a rather effective incentive."[40]

The authors of *Time on the Cross* cannot even lay claim to touching off the cliometric revolution that brought sophisticated economic analysis to such historical questions as slavery. It was two other economists, Alfred H. Conrad and John R. Meyer, with their 1958 *Journal of Political Economy* article, "The Economics of Slavery in the Ante Bellum South." Conrad and Meyer attempted to prove, empirically and rigorously, that slavery was in fact remunerative for the average slaveowner, and after much back-and-forth debate within over thirty published items in the technical literature, that finding at least was firmly established.[41] Conrad and Meyer had little to say in their original article about the

[40]Kenneth M. Stampp, *The Peculiar Institution: Slavery in the Ante–Bellum South* (New York: Alfred A. Knopf, 1956), p. 400.

[41]Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Ante Bellum South," *Journal of Political Economy*, 66 (Apr 1958), 95–122; reprinted in Conrad and Meyer, *The Economics of Slavery and Other Studies in Econometric History* (Chicago: Aldine, 1964); and again with revisions in Fogel and Engerman, eds., *The Reinterpretation of American Economic History*. This latter collection also includes a few of the other contributions of the new economic historians to the debate over slavery's profitability. Genovese's early comments on this debate are in *The Political Economy of Slavery*, pp. 275–87. Other major salvos include Yasukichi Yasuba, "The Profitability and Viability of Plantation Slavery in the United States," *Economic Studies Quarterly*, 12 (Sep 1961), 60–7; Robert Evans, Jr., "The Economics of American Negro Slavery," in National Bureau of Economic Research, *Aspects of Labor Economics: A Conference of the*

impact of slavery on the southern economy. Nevertheless, they were immediately

taken to task by a Marxist critic, Douglas Dowd, for finessing the important

distinction between profitability and efficiency. "The authors' argument may be

reduced to this," wrote Dowd in his brief comment: "*either* slavery was profitable

or it was a deterrent to economic development. My contention is that it was a

deterrent to economic development despite the fact of its profitability."[42]

Although Conrad and Meyer vehemently disputed Dowd's

characterization of their position, other new economic historians working in

different areas would soon produce studies relevant to the very issue of southern

economic growth. Using census data, Richard A. Easterlin, a researcher sponsored

by the National Bureau of Economic Research, published in 1960 estimates of

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Universities–National Bureau Committee for Economic Research (Princeton, NJ: Princeton
University Press, 1962); Edward Saraydar, "A Note on the Profitability of Ante Bellum Slavery,"
Southern Economic Journal, 30 (Apr 1964), 325–32; Richard Sutch, "The Profitability of Ante
Bellum Slavery—Revisited," *Southern Economic Journal*, 31 (Apr 1965), 365–77; James D. Foust
and Dale E. Swan, "Productivity and Profitability of Antebellum Slave Labor: A Micro
Approach," *Agricultural History*, 44 (Jan 1970), 39–62; N[oel]. G. Butlin, *Ante–bellum
Slavery—Critique of a Debate* (Canberra: Australian National University, 1971); Gavin Wright,
"New and Old Views on the Economics of Slavery," *Journal of Economic History*, 33 (Jun 1973),
452–66; and Richard K. Vedder and David C. Stockdale, "The Profitability of Slavery Revisited:
A Different Approach," *Agricultural History*, 49 (Apr 1975), 392–404. For Conrad and Meyer's
final summing up, see "Slavery as an Obstacle to Economic Growth in the United States," *Journal
of Economic History*, 27 (Dec 1967), 518–31. A collection that reprints many of the articles in this
debate is Hugh G. J. Aitken, ed., *Did Slavery Pay?: Readings in the Economics of Black Slavery in
the United States* (Boston: Houghton Mifflin, 1971), while the most recent and reliable review of
cliometric work on slavery is in Jeremy Atack and Peter Passell, *A New Economic View of
American History: From Colonial Times to 1940*, 2nd edn. (New York: W. W. Norton, 1994), pp.
299–354. The first edition of the latter work, co–authored by Passell with Susan Previant Lee
(1979), should not be ignored either, because even though its discussion is not as up–to–date, it
reviews some subjects at a higher level of economic sophistication. A more general
historiographical survey that covers a lot more than economics is Peter J. Parish, *Slavery: History
and Historians* (New York: Harper & Row, 1989).

[42]Douglas F. Dowd, "The Economics of Slavery in the Ante Bellum South: A Comment," *Journal
of Political Economy*, 66 (Oct 1958), 440–2. Dowd made basically the same point in "Slavery as
an Obstacle to Economic Growth in the United States: A Comment," *Journal of Economic
History*, 27 (Dec 1967), 531–8, a response to Conrad and Meyer's later article, appearing in the
same issue of that journal.

income shares for the various regions of the United States.[43] Within six years, Robert E. Gallman, in another NBER study based on census data, offered a path–breaking set of estimates of U.S. gross national product between 1834 and 1909.[44] Combined these studies showed that the South seemed to match the rapid and sustained economic growth of the rest of the country in the decades before the Civil War. Meanwhile extensive statistics on foreign and inter–regional trade provided the basis for Douglass North's 1961 survey of *The Economic Growth of the United States, 1790–1860*, which emphasized the role of southern cotton production in actually driving northern industrialization.[45] North coincidentally would later share the Nobel Prize in economics with Robert Fogel.

Fogel and Engerman distilled, synthesized, and refined all this previous work. They went much further in their conclusions, however. What was original with *Time on the Cross* were claims that slave plantations had been 40 percent more efficient than northern free farms, that planters had relied less on coercion than previously supposed, that historians had exaggerated slave breeding and the separation of slave families, and that generally antebellum slavery had been a model of economic rationality. As a result, the Old South's economy, "[f]ar from

[43]Richard A. Easterlin, "Interregnal Differences in Per Capita Income, Population, and Total Income, 1840–1950," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth Series, v. 24 (Princeton, NJ: Princeton University Press, 1960); Easterlin, "Regional Income Trends, 1840–1950," in Seymour E. Harris, ed., *American Economic History* (New York: McGraw–Hill, 1961), reprinted in Fogel and Engerman, eds., *The Reinterpretation of American Economic History*.

[44]Robert E. Gallman, "Gross National Product in the United States, 1834–1909," in National Bureau of Economic Research, *Output, Employment and Productivity in the United States After 1800*, Studies in Income and Wealth Series, v. 30 (New York: Columbia University Press, 1966).

[45]Douglass North, *The Economic Growth of the United States, 1790–1860* (New York: Prentice Hall, 1961).

stagnating," had been vibrant and dynamic. "[P]er capita income increased more rapidly . . . than in the rest of the nation."[46]

Such claims understandably raised the hackles of both historians and economists, and the best of the attacks on *Time on the Cross* were conveniently collected into two volumes: Herbert G. Gutman, *Slavery and the Numbers Game*, and Paul A. David, Herbert G. Gutman, Richard Sutch, Peter Temin, and Gavin Wright, with an introduction by Kenneth Stampp, *Reckoning with Slavery*. Stampp and Gutman were trained historians, but David, Sutch, Temin, and Wright were all themselves proficient practitioners of the new economic history. The objections of such an array of critics did not always perfectly mesh. Many criticisms focused on issues other than profitability and efficiency, such as the material treatment of slaves. Of those offering economic rebuttals, none questioned the profitability of slavery, by then a long–established conclusion. But with respect to the peculiar institution's relative efficiency, the challenges tried either to reverse Fogel and Engerman's bold assertions or at least to dampen them with healthy doses of skepticism.[47]

Of all the critics of *Time on the Cross*, however, only Stefano Fenoaltea, in a brief 1981 journal note, exposed fully the logical tension arising from Fogel

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[46]Fogel and Engerman, *Time on the Cross*, v. 1, pp. 6, 192.

[47]Herbert G. Gutman, *Slavery and the Numbers Game: A Critique of "Time on the Cross"* (Urbana: University of Illinois Press, 1975); and David, *et. al.*, *Reckoning with Slavery*. Another cliometric critic who did not make it into these two volumes was Roger L. Ransom, "Was It Really All That Great To Be a Slave?: A Review Essay," *Agricultural History*, 48 (Oct 1975), 578–85. An economically literate yet readable summary of the criticisms is Thomas L. Haskell, "The True and Tragical History of 'Time on the Cross'," *New York Review of Books*, 22 (2 Oct 1975), 33–9.

and Engerman's conclusions about the productivity of slavery versus how well slaves were treated. A recurrent theme throughout *Time on the Cross* was the extent to which planters, employing a flexible system of cash payments and other rewards, had inculcated within their black laborers a diligent work ethic and even an entrepreneurial spirit. They replaced the old stereotype of the black Sambo under slavery with a black Horatio Alger. "The truly novel argument made by *Time on the Cross* is that the superior 'efficiency' of slavery, the superior intensity of slave labor, . . . was attributable not to the threat (and use) of the lash but to humane treatment, moral suasion, and promises of rewards."

But Fenoaltea pointed out that if slave labor was, in fact, more physically productive in agriculture than free labor, this could not possibly be the consequence of monetary payments to slaves and other positive incentives, because those are the precise incentives slavery shares with free labor. The ability to coerce the slave is its only possible advantage over free labor.

> The slave–owner has no advantage over the employer of free men in his ability to offer, and elicit effort by means of, ordinary rewards. . . . If slaves were more productive than free labor, is it not presumably because they were threatened rather than cajoled, because slavery was terrible rather than benign?[48]

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[48]Stefano Fenoaltea, "The Slavery Debate: A Note From the Sidelines," *Explorations in Economic History*, 18 (Jul 1981), 304–8. Fenoaltea's insight was partially anticipated by Thomas L. Haskell, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: A Reply to Fogel–Engerman," *American Economic Review*, 69 (Mar 1979), 206–7. To be fair, Engerman, in an article that predated *Time on the Cross*, "Some Considerations Relating to Property Rights in Man," *Journal of Economic History*, 33 (Mar 1973), 50, recognized that "force" rather than "positive incentives" gave slavery any advantages it might have enjoyed over free labor, but somehow this recognition did not come through in the volumes co–authored with Fogel.

Without admitting as much, Fogel and Engerman began to incorporate this correction into subsequent journal articles on plantation agriculture.[49] Rather than their previous touting of "the record of black achievement under adversity," in which "diligent and efficient workers" were "imbued like their masters with a Protestant ethic," the co–authors now emphasized the harsh regimen of a gang system "with an assembly–line type of pressure" that forced slaves to accomplish as much "in roughly 35 minutes as a free farmer did in a full hour."[50] This unacknowledged transition was consummated in 1989, when Fogel returned to the fray with a new book, *Without Consent or Contract*. Reinforced this time by no less than three supporting volumes (although half the articles in two of these supplements were previously published), the text of *Without Consent or Contract* itself is really two distinct books grafted together. In the first half Fogel silently revised the more egregious *faux pas* in *Time on the Cross* and softened his tone while maintaining the same general economic evaluation of American slavery.

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[49]Robert William Fogel, "Three Phases of Cliometric Research on Slavery and its Aftermath," *American Economic Review*, 65 (May 1975), 37–46; and Fogel and Stanley L. Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," *ibid.*, 67 (Jun 1977), 275–96. This article in turn brought on another round of criticism: Donald F. Schaefer and Mark D. Schmitz, "The Relative Efficiency of Slave Agriculture: A Comment," *ibid.*, 69 (Mar 1979), 208–12; Paul A. David and Peter Temin, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Comment," *ibid.*, 213–8; and Gavin Wright, "The Efficiency of Slavery: Another Interpretation," *ibid.*, 219–26. Fogel and Engerman responded in "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," *ibid.*, 70 (Sep 1980), 672–90. Both Fogel and Engerman articles are reprinted in Fogel and Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992).

[50]Fogel and Engerman, *Time on the Cross*, v. 1, pp. 231, 263, 264; Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 291, 293. Haskell, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: A Reply to Fogel–Engerman," was the first to comment on Fogel and Engerman's silent transition.

The second half of Fogel's new book was an unexceptional but wide–ranging history of the antislavery movements in Britain and America.[51]

And what is the final verdict after all this controversy? My admittedly impressionistic judgment is that it depends upon whether you ask professional historians or economists. Most historians would agree with Genovese's appraisal that *Time on The Cross* was a "creative failure."[52] Peter Kolchin, professor of history at the University of Delaware and author of a splendid survey of *American Slavery, 1619–1877*, reports that Fogel and Engerman are left "with few defenders among professional historians"; *Time on the Cross* "was a flash in the pan, a bold but now discredited work that added little to the important stream of slavery revisionism that welled forth in the 1970s."[53] The verdict of professional economists, in contrast, can be gauged by Fogel's winning the 1993 Nobel prize in economics. They generally seem to believe that subsequent research sustained *Time on the Cross*. For instance, Donald (now Deirdre) McCloskey, a professionally trained economist at the University of Iowa, asserts that Fogel and Engerman "won the debate, demonstrating beyond scientific doubt what was

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[51]Robert William Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989). The supplementary volumes are co–edited and subtitled as follows: Fogel, Ralph A. Galantine, and Richard L. Manning, eds., *Evidence and Methods* (1992); Fogel and Engerman, eds., *Markets and Production: Technical Papers*, v. 1 (1992); Fogel and Engerman, eds., *Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2 (1992).

[52]As quoted in Haskell, "The True and Tragical History of 'Time on the Cross'," 39.

[53]Peter Kolchin, "More *Time on the Cross*? An Evaluation of Robert William Fogel's *Without Consent of Contract*," *Journal of Southern History*, 58 (Aug 1992), 492. Kolchin's survey, *American Slavery, 1619–1877* (New York: Hill and Wang, 1993), also includes a useful bibliographic essay on the slavery literature generally.

merely plausible in 1974."[54] This dichotomy is symptomatic of the hyper–specialization of modern academe, with the two disciplines failing to communicate with each other.

V

If one grants the efficiency of chattel slavery, one inevitably confronts a major empirical enigma. It is the mirror image of the enigma that faced the classical analysis of slavery, which had to offer some reason why such an inefficient (and possibly unprofitable) labor system endured over so much of human history. We have already seen that even the most extreme classical economist admitted that some circumstances might make human bondage temporarily lucrative for slaveholders even though it remained harmful to the economy. Among such circumstances were political barriers to competition from free labor, abundant unsettled and fertile land, or rapidly expanding markets for the products of servile labor. These qualifications, however, were often presented as aberrations from a normal economic environment. The new economic historians, on the other hand, must explain why an efficient and profitable labor system has—except for certain remote areas where it persists illicitly and clandestinely—all but disappeared from the face of the earth. In some respects, theirs is a much tougher problem, because this disappearance began at the end of the eighteenth century and was completed in little more than one hundred years, at

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[54]Donald McCloskey, "Little Things Matter" [a review of Fogel's *Without Consent or Contract*], *Reason*, 22 (Jun 1990), 52. See also McCloskey, "Robert William Fogel: An Appreciation by an Adopted Student," in Goldin and Rockoff, eds., *Strategic Factors in Nineteenth Century American Economic History*.

the very time that the Industrial Revolution was propelling much of the world towards greater economic efficiency and output.

The easy answer is one offered by Robert Fogel at the end of *Without Consent or Contract*; slavery was eventually overwhelmed by an ideological crusade oblivious to the economic consequences and more powerful than any selfish resistance. "Slavery was profitable, efficient, and economically viable in both the United States and the West Indies when it was destroyed," he proclaims; "Its death was an act of 'econocide,' a political execution of an immoral system at its peak of economic success, incited by men ablaze with moral fervor."[55] While no doubt capturing some truth, this answer should be a bit unsatisfying, especially to an economist. Notice the ironic asymmetry between the pure economic rationality of slaveholders, defending their profitable and efficient source of wealth, and the defiance of narrow self–interest by their abolitionist opponents. Fogel, himself a former Marxist, has inverted the traditional Marxist formulations of Eric Williams, in which abolition is imposed by the forces of self–interested capitalism, and of Eugene Genovese, where slaveholders cling to their inefficient and unprofitable system from ideological motives.[56]

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[55]Fogel, *Without Consent or Contract*, p. 410.

[56]Eric Williams, *Capitalism and Slavery* (Chapel Hill: University of North Carolina Press, 1944). Fogel borrowed the term econocide from Seymour Drescher, *Econocide: British Slavery in the Era of Abolition* (Pittsburgh: University of Pittsburgh Press, 1977), a systematic and influential rejection of the Williams thesis. See also Roger I. Anstey, "Capitalism and Slavery: A Critique," *Economic History Review*, 2nd ser., 21 (Aug 1968), 307–20; Drescher, "Capitalism and the Decline of Slavery: The British Case in Comparative Perspective," in Vera Rubin and Arthur Tuden, eds., *Comparative Perspectives on Slavery in New World Plantation Societies: Annals of the New York Academy of Sciences*, v. 292 (New York: New York Academy of Sciences, 1977); Roger Anstey, *The Atlantic Slave Trade and British Abolition, 1760–1810* (Atlantic Highlands, NJ: Humanities Press, 1975); Temperley, "Capitalism, Slavery and Ideology," 94–105; Howard Temperley, "The Ideology of Antislavery", in David Eltis and James Walvin, eds., *The Abolition*

For less asymmetrical resolutions to the enigma of slavery's sudden decline, we can turn to some theoretical work of other current economists. Fogel and Engerman never contended that bound labor was superior to free labor under all possible circumstances; for instance, while the peculiar institution was adaptable to southern factories, they found it had no competitive advantage there. But by trying to identify more systematically what historical conditions make slavery profitable and efficient, and what conditions do not, these theoretical studies often shed light on slavery's rise and fall.

One of the oldest approaches—suggested as early as 1900 by the Dutch ethnographer, Herman J. Nieboer, in the first edition of his *Slavery as an Industrial System*—focuses on the relative scarcities of land and labor.[57] Evsey D. Domar in a seminal 1970 *Journal of Economic History* article, "The Causes of Slavery or Serfdom: A Hypothesis," built upon Nieboer's suggestion. Domar hypothesizes that, where land is relatively free while labor is relatively scarce, large landowners have a strong incentive to turn to some form of unfree labor to enhance their incomes. He admits that political variables make "the presence of free land by itself neither a necessary nor a sufficient condition for the existence of serfdom" or slavery. But "these difficulties notwithstanding, I would still

of the Atlantic Slave Trade: Origins and Effects in Europe, Africa, and the Americas (Madison: University of Wisconsin Press, 1981); Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade* (New York: Oxford University Press, 1987); and Barbara Solow and Stanley Engerman, eds., *British Capitalism and Caribbean Slavery: The Legacy of Eric Williams* (Cambridge, UK: Cambridge University Press, 1987). For a vigorous, sophisticated, and fascinating debate between John Ashworth, David Brion Davis, and Thomas L. Haskell, partly reprinted from the *American Historical Review*, about the relationship between abolitionism and capitalism, see Thomas Bender, ed., *The Antislavery Debate: Capitalism and Abolitionism as a Problem in Historical Interpretation* (Berkeley: University of California Press, 1992).

[57]H. J. Nieboer, *Slavery as an Industrial System: Ethnological Researches*, 2nd edn. (The Hague: Martinus Nijhoff, 1910), particularly pp. 417–22.

expect to find a positive statistical correlation between free land and serfdom (or slavery)."[58] Later the same year, one of Fogel and Engerman's cliometric precursors on the question of slavery's profitability, Robert Evans, proposed in a short *Journal of Economic History* note that the labor shortage had to be accompanied with effective political constraints on competition in order to prevent employers from simply bidding up the price of labor.[59]

Stanley Engerman, on the other hand, in "Some Considerations Relating to Property Rights in Man," his own theoretical excursion appearing the year before *Time on the Cross*, has rejected the Domar thesis for being so under–determined as to end up virtually useless. "By definition a high land–labor ratio means labor is relatively scarce, making slavery desirable for the ruling class, but" as Engerman emphasizes, "also more difficult to achieve." Citing the role of the Black Death in the decline of serfdom in England, and invoking "the names of Frederick Jackson Turner for historians and of Adam Smith for economists," he points out that one could just as easily "raise the argument that 'free land' is good for the working classes and political democracy."[60] Another who has rejected the Domar hypothesis is Orlando Patterson. In an article that predated by five years

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[58]Evsey D. Domar, "The Causes of Slavery or Serfdom: A Hypothesis," *Journal of Economic History*, 30 (Mar 1970), 18–32.

[59]Robert Evans, Jr., "Some Notes on Coerced Labor," *Journal of Economic History*, 30 (Dec 1970), 861–6.

[60]Engerman, "Some Considerations Relating to Property Rights in Man," 59. Philip D. Curtin later made the same point in "Slavery and Empire," from Rubin and Tuden, eds., *Comparative Perspectives on Slavery in New World Plantation Societies*, pp. 6–8. See also Engerman, "Coerced and Free Labor: Property Rights and the Development of the Labor Force," *Explorations in Economic History*, 29 (Jan 1992), 20–1.

his masterly comparative study of slavery throughout history, *Slavery and Social Death*, he subjected to statistical analysis the sample of 186 world cultures developed by the eminent anthropologist George P. Murdock. Patterson found in fact a negative correlation between abundant land and slavery, and also faulted the Domar thesis for its failure to accord with what we know about the origins of Greek slavery.[61]

Carville V. Earle, in the *Geographical Review* for 1978, attempts to identify when free land might foster slavery as opposed to when it might foster free labor. He suggests that the nature of the crop being cultivated is the relevant variable. Cotton, rice, and tobacco, which need sustained attention throughout their long growing seasons, make the year–round labor force provided by slavery more efficient. The cultivation of wheat, in contrast, only requires brief episodes of intense labor, so that hiring short–term free labor becomes less expensive than supporting a slave community. "Wage labor was competitive for part of the year," Earle argues, "but never on an annual basis. Farmers who needed labor for a few days, weeks, or months, found the use of hired labor decidedly cheaper and more efficient economically than slaves." Corn "lay intermediate between wheat's few days and the multiple labor days of tobacco and cotton."[62] This plausible

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[61]Orlando Patterson, "The Structural Origins of Slavery: A Critique of the Nieboer–Domar Hypothesis from a Comparative Perspective," in Rubin and Tuden, eds., *Comparative Perspectives on Slavery in New World Plantation Societies*; Patterson, *Slavery and Social Death: A Comparative Study* (Cambridge, MA: Harvard University Press, 1982).

[62]Carville V. Earle, "A Staple Interpretation of Slavery and Free Labor," *Geographical Review*, 68 (Jan 1978), 51, 61. Earle's emphasis on the seasonality of agricultural labor was anticipated in part by Ralph V. Anderson and Robert E. Gallman, "Slaves as Fixed Capital: Slave Labor and Southern Economic Development, " *American Historical Review*, 64 (Jun 1977), 24–46.

explanation, however, is undermined by James R. Irwin's discovery that slaves were profitably employed in large–scale wheat production in the Virginia Piedmont.[63] Recent estimates of John F. Olson, furthermore, suggest that northern free farmers, in fact, worked more hours each year than southern slaves. Whereas slaves on cotton plantations worked 2800 hours per year, free farmers clocked an average of 3200 hours.[64]

The distinguished English economist, John R. Hicks, has approached the problem from the reverse (though not contradictory) direction in a chapter on the labor market from his 1969 book, *A Theory of Economic History*. He sees slavery's rise and fall as being driven primarily by its supply rather than its demand. "Ancient slavery was not rooted out, as negro slavery may be held to have been in the nineteenth century, by an upsurge of moral feeling," Hicks insists; the question "must have an answer that is mainly economic." Basically, potential employers will prefer whichever type of labor is cheaper. When wars, for example, provide multitudes of fresh captives, the price of slave labor will fall relative to that of free labor and the former will predominate. But once the supply of slaves dries up, "the labour force would come to consist to a larger extent of free labour and less of slaves." Thus, "[t]he principal reason why free labour displaced slave labour was that in the conditions when the change occurred, free

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[63]James R. Irwin, "Exploring the Affinity of Wheat and Slavery in the Virginia Piedmont," *Explorations in Economic History*," 25 (Jul 1988), 295–322.

[64]John F. Olson, "Clock Time versus Real Time: A Comparison of the Lengths of the Northern and Southern Agricultural Work Years," in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1; Fogel, *Without Consent or Contract*, pp. 77–8.

labour was cheaper." Note that under Hicks's hypothesis, the suppression of the transatlantic slave trade becomes a crucial precondition for eliminating bondage in the New World.[65]

A few of the theoretical studies that emerged in the early 70s have been highly technical and quite limited explorations of the microeconomics of slavery. For instance, Theodore Bergstrom presents a formal, mathematical proof that a slave economy *can* attain an efficient equilibrium, but only if manumission through self–purchase is permitted.[66] Giorgio Cannarella and John Tomaske look at the trade–off between rewards and punishment that slave management faces and speculate on why punishments might have a cost advantage.[67] Ronald Findlay also models the optimal combination of rewards and punishment for a slaveholder. His major substantive conclusion is that a slave's potential ability to purchase his own liberty varies directly with the interest rate, but this hinges on such stringent assumptions that it has little historical relevance.[68]

Not all the theoretical reflections on slavery's microeconomics have been quite so narrow in their applicability, however. The *Journal of Law and Economics*, starting in the late 1950s, has been at the forefront of applying the

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[65]John R. Hicks, *A Theory of Economic History* (Oxford: Clarendon Press, 1969), pp. 130–1, 133.

[66]T. Bergstrom, "On the Existence and Optimality of Competitive Equilibrium in a Slave Economy," *Review of Economic Studies*, 38 (Jan 1971), 23–36. The argument, however, was anticipated in a more succinct, verbal form by Harold Demsetz, "Toward a Theory of Property Rights," *American Economic Review*, 57 (May 1967), 348–9.

[67]Giorgio Cannarella and John Tomaske, "The Optimal Utilization of Slaves," *Journal of Political Economy*, 35 (Sep 1975), 621–9.

[68]Ronald Findlay, "Slavery, Incentives, and Manumission: A Theoretical Model," *Journal of Political Economy*, 83 (Oct 1975), 923–33.

discipline of economics to new subjects beyond the routine behavior of markets. In 1977 it presented Yoram Barzel's model of slavery, which relied heavily on the concept of transaction costs as developed by Ronald Coase. Starting with a standard indifference–curve analysis of a worker's choice between leisure and work, Barzel incorporates a recognition that the enjoyment of leisure may be diminished not only by how long one works but also by how hard. He argues that slavery, just like other forms of extreme poverty, can under certain circumstances induce individuals to labor more hours or more intensely than otherwise. In the arcane language of economists, a person whose earning power is very low or is a net debtor will have a "positive income elasticity" for leisure—as his income rises, he will work less (if we measure quality as well as quantity of labor). This amounts to saying, although Barzel does not use this terminology, that slavery not only operates like a tax on work but also like a tax on leisure, inducing slaves to work longer or harder than free laborers. But for slaveholders to be able to exploit this vulnerability, the costs of "policing" their human property must be low enough. Thus Barzel concludes that "the observed 'greater productivity of slaves'" discovered by Fogel and Engerman, "occurs not because slavery is more productive per se but because slavery endured only where," by meeting this condition, "it proved to be more productive." Free labor will out–compete bound labor when policing costs are too high, which makes them the decisive determinant in slavery's rise and fall.[69]

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[69]Yoram Barzel, "An Economic Analysis of Slavery," *Journal of Law and Economics*, 20 (Apr 1977), 87–110; Barzel presents a truncated form of this article as ch. 6 of his *Economic Analysis of Property Rights* (Cambridge, UK: Cambridge University Press, 1989).

It is appropriate that Stefano Fenoaltea, given his penetrating insight into the debate over *Time on the Cross*, has framed arguably the most innovative and comprehensive theory on the economics of slavery. He presented what he calls an "extended transaction–costs model" in the *Journal of Economic History* in 1984. Starting with the supposition that rewards and punishment are not perfect substitutes for motivating workers, Fenoaltea proposes that under different conditions one or the other will be more effective. "Pain incentives, it would seem, are the more effective in generating effort," i.e., eliciting work that requires brute force or prolonged intensity. "On the other hand, pain incentives are the less effective in generating carefulness," i.e., eliciting labor that involves complex machinery, highly developed skills, or individual initiative. Fenoaltea employs this ingenuous premise to illuminate not only the historical waxing and waning of various forms of unfree labor, but also the kinds of employment where free or unfree labor will prevail, and the modern persistence of coercion in such professions as the military. Fenoaltea thus treats the relative efficiency of rewards versus punishments as arising out of their subjectively distinct impacts on the worker, whereas Barzel relies upon their comparative policing costs to employers. Despite the ingenuity of Fenoaltea's extended transaction–costs model, however, he makes it operationally indistinguishable from Barzel's simple transaction–costs model. For Fenoaltea allows that "the *immediate* threat of hunger" faced by "free workers on the margin of subsistence" can induce them to work as intensely as slaves. This undermines his sharp distinction between rewards and punishments,

because apparently extreme poverty, the factor emphasized by Barzel, can make payments equally effective at motivating workers as the threat of pain is.[70]

One set of economists has been virtually ignored in this ongoing discussion. Consisting of John E. Moes, who participated in the early debate over the Conrad and Meyer article on profitability; Gordon Tullock, who although a political scientist was, along with Nobel Laureate James Buchanan, a pioneer in the development of public–choice theory; Thomas Sowell, Senior Fellow at the Hoover Institution, Stanford University; and Mark Thornton, of Auburn University and the Ludwig von Mises Institute, these writers have paid unique attention to the prevalence of manumission in past slave systems.[71] "Freeing a slave is normally treated as an act of grace on the part of the master," writes Tullock. "Although I would not like to deny the existence of such acts of manumission, the fact remains that historically manumission has more often taken the form of a mutually profitable arrangement between the slave and his master." Because most slaves have what Moes calls a "sentimental attachment" to their own body, they have been willing to purchase their own freedom by working harder once free or alternatively doing the same physical work for less retained

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[70]Stefano Fenoaltea, "Slavery and Supervision in Comparative Perspective: A Model," *Journal of Economic History*, 44 (Sep 1984), 635–68.

[71]John E. Moes, "The Economics of Slavery in the Ante Bellum South: Another Comment," *Journal of Political Economy*, 68 (Apr 1960), 183–87; Moes, "Comment," *Aspects of Labor Economics*; Tullock, "The Political Economy of Slavery"; Thomas Sowell, "The Economics of Slavery," chapter 5 in *Markets and Minorities* (New York: Basic Books, 1981); Sowell, *Race and Culture: A World View* (New York: BasicBooks, 1994), pp. 186–223; Mark Thornton, "Slavery, Profitability, and the Market Process" *Review of Austrian Economics*, 7 (1994), 21–47.

income.[72] Such manumissions through self–purchase were common both in ancient and in Latin America slavery. But the slave systems of the British West Indies and the southern United States had extensive legal barriers to manumission.

This could be termed a legal–restrictions theory of slavery. Like Hicks, these authors stress the availability of captives for the initial development of a slave system. But after such sources dry up, bondage can only persist if there are significant obstacles to slaves buying their liberty. Fenoaltea has recognized that this argument "effectively undercut[s]" the "consensus as to the institution's viability," yet "the cliometric fraternity appears generally to have ignored it." Engerman did briefly address the issue in his theoretical article mentioned above, but in Fenoaltea's words, "simply dismissed it out of hand, with arguments the weakness of which Moes had already noted."[73] The singular implication of the legal–restrictions theory of Moes, Tullock, Sowell, and Thornton is that slavery may be sometimes profitable even though it is still inefficient. More emphatically than any other recent writers, they have de–coupled these two concepts. So long as there are potential but unrealized transactions between slaveowners and their chattel that will make both parties better off, the economy is poorer than otherwise. "Slavery could well have been profitable to slave owners," concludes Sowell, "and yet create so many external costs as to make its economic impact

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[72]Tullock, "The Political Economy of Slavery," 10; Moes, "The Economics of Slavery in the Ante Bellum South," 184.

[73]Fenoaltea, "Slavery and Supervision in Comparative Perspective," 643; Engerman, "Some Considerations Relating to Property Rights in Man," 62–3.

negative on the white population as a whole."[74] We shall see in the next few chapters that this conclusion is essentially correct.

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[74]Sowell, *Markets and Minorities*, p. 100.

Chapter 2
Slavery and Profitability

I

Not every writer who has explored the economics of chattel slavery has automatically identified profitability with efficiency, as we have observed in Chapter 1. That so many, nonetheless, should fail to differentiate carefully between these separate questions seems natural at first glance; profitability has become the most observable (although not exclusive) measure of efficiency in modern market economies. Yet upon further reflection, this frequent conflating of the two concepts becomes less understandable, since there are other obvious practices, from piracy to monopoly, where individual gains do not translate into social benefits. Indeed, I will argue that both polar positions—of classical economists such as Adam Smith and of new economic historians such as Robert Fogel and Stanley Engerman—are partly wrong (as well as partly right). The South's peculiar institution was indeed profitable but nevertheless inefficient. In economic jargon, it was a system that imposed significant "deadweight loss" on the southern economy, despite being lucrative for slaveholders.

The current consensus among both historians and economists is that the Old South's peculiar institution was at least profitable for planters. But the question still merits some review for the light that it will shed on our discussion of slavery's efficiency. To begin with, the word "profitable," even when sharply distinguished from "efficient," can have several meanings. In the broadest sense, we could refer to the *psychic* profit that an individual subjectively experiences

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from an act of consumption, such as wearing cotton clothing or smoking tobacco. Obviously the debate over slavery's profitability was concerned with returns that were monetary or material rather than psychic. Economists, however, sometimes measure monetary profit differently than do accountants. What economists call "opportunity cost," defined as the best foregone alternative, is basic to their understanding. While accountants consider a firm's explicit monetary costs, economists will also include such implicit costs as the income given up as a result of allocating labor or savings one way rather than another. Even if an investment in slaves yielded a monetary return of 5 percent per year, economists will reckon this unprofitable if some alternative investment that was equally accessible and no more risky would have yielded 15 percent. The slaveowner's accounting profit would be positive but his economic or pure profit was would be a negative 10 percent. Only when the return equals what could be earned elsewhere in the economy, adjusting for uncertainty and other related factors, does an investment qualify as profitable. And whether owning slaves was profitable in this sense depends, among other things, on the price paid for them.

We also should define what we mean by "chattel slavery." Servitude has come in many forms throughout history, but a slave is a person who is owned outright by someone else. The slave has virtually no enforceable property rights, because they all reside with the slaveowner. Title to the slave's body is so complete that the master can utilize it, sell it, or otherwise dispose of it in anyway he chooses, just as he would with any other chattel, whether inanimate objects or animals. Moreover, the human chattel's status arises involuntarily and can cease

only at the will of the master. A free person, on the other hand, owns himself.[1] Of course, societies have imposed all sorts of restrictions upon nominally free laborers. Even those of us who enjoy the liberty attained in the modern world usually suffer some coercive attenuation of our self–ownership, as through income taxes and other government restrictions. A free person may also voluntarily transfer rights through contract. On the other hand, the slaveholder's power over human chattel was sometimes limited slightly—within the antebellum South by unenforceable state laws preventing murder and mutilation and setting minimum standards for subsistence.

We can therefore visualize a spectrum running all the way from unqualified self–ownership at one end to absolute slavery at the other. This helps us to distinguish chattel slavery from other forms of unfree labor. Under serfdom,

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[1]This definition of chattel slavery owes much to H. J. Nieboer, *Slavery as an Industrial System: Ethnological Researches*, 2nd edn. (The Hague: Martinus Nijhoff, 1910), pp. 3–40; David Brion Davis, *The Problem of Slavery in Western Culture* (Ithaca, NY: Cornell University Press, 1966), pp. 31–5; M[oses]. I. Finley, "Slavery," in David L. Sills, ed., *International Encyclopedia of the Social Sciences* (New York: Macmillan & Free Press, 1968), v. 14; Davis, "Slavery," in C. Vann Woodward, ed., *The Comparative Approach to American History* (New York: Basic Books, 1968); Finley, "A Peculiar Institution?" *Times Literary Supplement*, no. 3877 (2 Jul 1976), 819–21; Philip D. Curtin, "Slavery and Empire," in Vera Rubin and Arthur Tuden, eds., *Comparative Perspectives on Slavery in New World Plantation Societies: Annals of the New York Academy of Sciences*, v. 292 (New York: New York Academy of Sciences, 1977); James L. Watson, "Slavery as an Institution: Open and Closed Systems," in Watson, ed., *Asian and African Systems of Slavery* (Berkeley: University of California Press, 1980); G. E. M. de Ste. Croix, "Slavery and Other Forms of Unfree Labour," in Léonie J. Archer, ed., *Slavery and Other Forms of Unfree Labour* (London: Routledge, 1988); James Oakes, *Slavery and Freedom: An Interpretation of the Old South* (New York: Random House, 1990), pp. 3–39; Michael L. Bush, "Introduction," in Bush, ed., *Serfdom and Slavery: Studies in Legal Bondage* (London: Longman, 1996); Stanley L. Engerman, "Slavery, Serfdom and Other Forms of Coerced Labour: Similarities and Differences," in *ibid*.; and Robin Blackburn, "Slave Exploitation and the Elementary Structures of Enslavement," in *ibid*. For reasons that are at least partially obvious, I prefer an economic definition over the sociological definition proposed by Orlando Patterson in *Slavery and Social Death: A Comparative Study* (Cambridge, MA: Harvard University Press, 1982), p. 13: "*the permanent, violent domination of natally alienated and generally dishonored persons.*"

the lord's property claim was not as complete. The serfs generally had some rights in land, some control over their time and labor, and some independent obligations to the prince or central State. Indentured servitude, apprenticeship, and contract labor, unlike slavery, were forms of bondage that were most often voluntarily assumed and always for a defined period. Military conscription and convict labor generally have fixed terms as well, and moreover the title holders to these forms of compulsory service are not usually private individuals or organizations who can trade their claims with others, but instead government bureaucracies with numerous legal regulations upon the labor's use and no obvious residual claimant to its output. For this reason we would likewise exclude the forced labor of Nazi Germany and the Soviet Union from our concept of *chattel* slavery, although the slave soldiers of the Ottoman Empire occupy a hazy dividing line, because in that case the government was the Sultan, who presumably could exercise all the personal prerogatives of a private owner of human property.[2]

Even in this restricted sense, chattel slavery has been a source of forced labor since the dawn of civilization. People have sought slaves on every continent and for every conceivable task. Islamic slavery, which arose during the Middle Ages and forcibly transported across the Sahara and Indian Ocean many more souls than were seized for the transatlantic trade, satisfied a large demand for

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[2]The Sultan's janissaries may technically have been manumitted at the end of their military training. This was definitely the case for the other large class of Islamic soldiers recruited through enslavement, the Mamluks. Patterson, *Slavery and Social Death*, pp. 313–4, and V. L. Ménage, "Some Notes of the *Devshirme*," *Bulletin of the School of Oriental and African Studies*, 29 (1966), 64–78.

luxury goods.[3] These black Africans were compelled to serve as retainers, servants, or concubines. While no doubt they usually provided their owners a psychic profit, their contributions to monetary income were, for the most part, slight to non–existent. Even when not directly satisfying their masters' desires, many slaves in the medieval and ancient worlds engaged in household production only. New World slavery, in contrast, produced tobacco, sugar, rice, cotton, and other commodities for world markets.[4]

The ultimate consumers of the cotton that black slaves grew in the American South were workers in England and elsewhere who wore clothes manufactured from it. The demand for any factor of production—slaves, coal, or machine lathes—is derived from whatever consumption goods or services that factor helps produce. Factor prices, therefore, hinge upon the value of their

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[3]Ralph A. Austen, *African Economic History: Internal Development and External Dependency* (London: James Currey, 1987), p. 275, puts the total number of slaves exported from Africa into the Islamic world from 650 to the present at 17 million, over 5 million more than the transatlantic trade.

[4]For my knowledge of slavery in the ancient and medieval worlds, I have relied on Alfred Zimmern, "Was Greek Civilization Based on Slave Labour?" in Zimmern, *Solon and Croesus: And Other Greek Essays* (London: Oxford University Press, 1928); William L. Westermann, *The Slave Systems of Greek and Roman Antiquity* (Philadelphia: American Philosophical Society, 1955); Moses I. Finley, ed., *Slavery in Classical Antiquity: Views and Controversies* (Cambridge, U.K.: W. Heffer & Sons, 1960); Davis, *The Problem of Slavery in Western Culture*; chapter 3 of Finley, *The Ancient Economy*, 2nd edn. (Berkeley: University of California Press, 1973); Keith Hopkins, *Conquerors and Slaves: Sociological Studies in Roman History*, v. 1 (Cambridge, UK: Cambridge University Press, 1978); G. E. M. de Ste. Croix, *The Class Struggle in the Ancient Greek World: From the Archaic Age to the Arab Conquests* (Ithaca, NY: Cornell University Press, 1981); Garlan Yvon, *Slavery in Ancient Greece*, rev. edn., (Ithaca, NY: Cornell University Press, 1982); David Brion Davis, *Slavery and Human Progress* (New York: Oxford University Press, 1984); William D. Phillips, Jr., *Slavery From Roman Times to the Early Transatlantic Trade* (Minneapolis: University of Minnesota Press, 1985); Patterson, *Slavery and Social Death*; Peter Garnsey, *Ideas of Slavery from Aristotle to Augustine* (Cambridge, U.K.: Cambridge University Press, 1996); and Bush, ed., *Serfdom and Slavery*. Finley, *Ancient Slavery and Modern Ideology* (London: Chatto & Windus, 1980), makes direct comparisons between ancient and New World slavery.

output. An investor purchasing a slave *solely* for production would be concerned only whether the monetary return from the slave's labor would match the best alternative investments, after adjusting for differences of risk. Eventually any changes in the market for cotton would work backward upon the demand for and price of slaves.

The same principles govern free labor with one major difference. As stressed in Chapter 1, the most salient economic feature of the South's peculiar institution is that, like theft, it involved a compulsory transfer from black slaves to white masters. This is best illustrated in the market for hiring slaves, which was highly developed in the Old South. Slaves who were skilled carpenters, masons, or other artisans sometimes competed against free whites offering the same services. As long as the fee and the quality were identical, purchasers of such services would be largely indifferent between the two types of labor. But whereas free workers exchanged labor for market wages, a slaveowner could rent out slaves at the same wage, force them to do the same work, but grant them only a portion of the earnings in money or in kind and keep the difference. The amount the owner kept constituted the transfer and gave slaves a positive price.

Consider Figure 2.1, a simple supply and demand diagram. The vertical axis measures the wage rate, while the horizontal axis the quantity of labor provided per unit of time. (The unit of time and wage rate could both be expressed per hour, per week, or per month, but for convenience we will settle on per year.) **D** depicts the derived demand for labor, either free or slave, and corresponds to the value of labor's marginal contribution to whatever consumption goods or services it helps produce (what economists call the "marginal revenue product").

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The demand curve has the standard negative (downward) slope reflecting the fact that as wages fall, employers will find it worthwhile to hire more labor, if they can hire as much as they want. **S** on the other hand represents the supply of labor. For simplicity I have made this curve vertical (inelastic) at *L*, the quantity of labor provided, even though the supply of free labor usually has a positive (upward) slope. The supply of slaves for hire also sloped upward, but the total number of slaves at any given time was inelastic.[5] Whatever the supply curve's ultimate shape, the intersection of **S** and **D** determines the equilibrium wage rate, *W*. If the diagram represented a free labor market, then all workers collectively would earn a total of *W* x *L* per year. Slaves however received only what income their owners chose to provide as subsistence, at some level *M* lower than *W*. The difference between *W* and *M* was coercively transferred from each bondsman to his master, and the total income of slaveholders from either hiring out slave labor or employing it themselves was therefore the shaded area, (*W* – *M*) x *L* per year.

Our simple diagram so far assumes that every slave is identical. In reality, the income stream varied among slaves and over the life of each individual, being even negative during a slave's infancy and possibly old age, because subsistence (*M*) exceeded any income (*W*) that the slave generated. But the current market price, *P*, of any slave still depended upon that future stream. As with other durable assets, real or financial, competition tended to ensure that the *expected* annual transfers for any single slave, $T = W - M$, were discounted to a present

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[5]A diagrammatic exposition of the relationship between slave rental and purchase markets is in Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), pp. 57–8.

value according to the prevailing market interest rate, i, and then added together

over the slave's remaining life, n, as in formula 2.1:

$$(2.1) \qquad P = \frac{T_1^*}{(1+i)^1} + \frac{T_2^*}{(1+i)^2} + \cdots + \frac{T_{n-1}^*}{(1+i)^{n-1}} + \frac{T_n^*}{(1+i)^n}$$

In all our equations, a variable with an asterisk is the anticipated (*ex ante*)

value, while without an asterisk is the realized (*ex post*) value. T_1^* thus is the

anticipated transfer in the first year, T_2^* in the second, and so on through T_n^*, so

that the formula can be shortened to 2.2:

$$(2.2) \qquad P = \sum_{t=1}^{n} \frac{T_t^*}{(1+i)^t}$$

Bear in mind that many variables could affect these T^*s, including the

probability that the bondsman would live through the year in question, the danger

of his or her running away, as well as all the contingencies of the cotton market,

or whatever other product the bondsman produced. But so long as slave prices

were flexible, they could rise or fall to bring returns into line with the interest rate.

If an owner planned to hold a slave for only a fixed period, later reselling his

human asset, the formulas still applied; the expected price at resale was the future

income stream from the date of sale into the future, but also discounted to the

present. In the final analysis, slavery allowed masters to forcibly expropriate

much of a worker's human capital; indeed this is one of chattel slavery's defining

characteristics. Slave prices constituted a futures market in stolen income.[6]

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[6]Fans of H. L. Mencken may notice that I have adapted this formulation from his quip that "every election is a sort of advance sale of stolen goods," in Malcolm Moss, ed., *A Carnival of Buncombe*, (Baltimore: Johns Hopkins Press, 1956), p. 325.

Future income is never certain, however, so the slaveowner's anticipations may not have been realized. This made expectations a major influence on slave prices, creating a potential divergence between profits *ex ante* and profits *ex post*. A few slaveholders were probably making entrepreneurial errors at any time, and it is at least theoretically possible for planters generally to have been too optimistic about future earnings, in which case the *ex post* return on slaves would have fallen below the going rate. Both Ulrich Bonnell Phillips and Gavin Wright pursued this line of reasoning to contend slaves were over–priced in 1860. Speculation in slaves had generated huge capital gains for slaveholders that would not have been justified by future events. Literally Phillips and Wright are quite correct, since slave prices clearly failed to reflect the upcoming emancipation that would result from the Civil War. But what those two scholars had in mind was an unanticipated decline in cotton demand that would have negatively affected slaveholders' earnings even without abolition.[7] This contention requires some explanation of why planters should all make the same faulty estimate simultaneously, but in any case, a fall in slave prices is all that would have been required to restore profitability.

Southerners also bought slaves for conspicuous personal consumption. Indeed, a particular bondsman might work both as a field hand and domestic servant. Thus, two sources of demand were impinging on the same market. But

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[7]U. B. Phillips, *American Negro Slavery: A Survey of the Supply, Employment and Control of Negro Labor as Determined by the Plantation a Regime* (New York: D. Appleton, 1918), pp. 373–5; Gavin Wright, "Slavery and the Cotton Boom," *Explorations in Economic History*, 12 (Oct 1975), 439–51; and Wright, *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: W. W. Norton, 1978), pp. 139–44.

even if the majority of American slaves had constituted expensive luxury goods satisfying wealthy masters, that would not necessarily have diminished the profitability of any purchased for production. No matter how high conspicuous consumption might have driven up prices, profit seeking investors could have bought slaves only up to the point where expected returns remained equal to returns on other options. On the other hand, the monetary earnings from any slaves purchased for consumption purposes, even when also engaged in some production for markets, would no longer have met the going rate.[8]

The price of slaves, in summary, was like the price of any other capitalized good, including corporate stock, farm land, or cattle. The planter held title to the slave's future labor. This labor produced an income stream equal to the value of the output minus the value of all resources devoted to the slave's subsistence, maintenance, and management. Market competition would drive prices to the present sum of this expected future income, discounted at the prevailing rate of interest. Because the future was uncertain and information was costly, this income stream would occasionally diverge from expectations. But since there was no reason to expect these entrepreneurial errors to be systematic in either direction, on average slaves should have been as profitable as any other asset traded in the market.

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[8]Fogel and Engerman, *Time on the Cross*, v. 2, pp. 62–4, provide a theoretical analysis of the impact of conspicuous consumption on slave prices. A more detailed presentation is Andrew M. Rosenfield, "The Taxonomy of Horizontal and Vertical Addition of Demand Curves: An Historical Approach," in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992).

The record of pre–Civil War slave prices confirms that very few purchases were for mere consumption. This was the conclusion of Alfred Conrad and John Meyer in their initial article of 1958, which compared the cost of purchasing a slave with estimates of other capital costs, cotton production, cotton prices, maintenance costs, slave life expectancy, and female fertility, culled mainly from plantation records, the traditional source upon which historians going back to Phillips had relied. Early critics—notably Edward Saraydar and Noel Butlin—turned up errors that made it appear that Conrad and Meyer had overstated the average *ex ante* return that slaveowners could reasonably have expected as of 1846–1850, if cotton market conditions had remained relatively stable through the Civil War and beyond.[9] But others found errors going in the opposite direction. Among them was Robert Evans, who introduced new data, a sample of 6,600 slave hire prices, which permitted him to derive slave income directly, avoiding all the complications and pitfalls of plantation records. Evans also collected the first substantial series of market prices for slaves since the extensive research of Phillips on prices in Virginia, Charleston, middle Georgia, and New Orleans.[10]

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[9]Conrad and Meyer were widely interpreted as calculating slavery's *ex post* profitability, but as Fogel and Engerman point out in *Time on the Cross*, v. 2, pp. 68–9, this is not possible. Most slaves purchased after 1835 had their *ex post* returns diminished by the Civil War, while slave prices before that date were considerably lower than those that Conrad and Meyer were analyzing. "What Conrad and Meyer did was provide the answer to a question somewhat different . . . : 'If investors during 1846–1850 believed that a prime slave would continue as productive as such slaves had been on average during the previous decade, and if they thought that the price of cotton as well as slave maintenance costs would also continue at the average level of the late forties, was the 1846–1850 price of a slave justified by business considerations alone?'"

[10]Alfred H. Conrad and John R. Meyer, "The Economics of Slavery in the Ante Bellum South," *Journal of Political Economy*, 66 (Apr 1958), 95–122; Robert Evans, Jr., "The Economics of

By 1967 William Parker and Robert Gallman, under a grant from the National Science Foundation, had put into machine–readable format their sample of 5000 farms in 11 southern states from the manuscript schedules of the 1860 Census. The schedules were the original forms on which U.S. marshals and their assistants had written down the information supplied by households and firms. An article by James Foust and Dale Swan employed this sample to corroborate Conrad and Meyer's estimates of slave profitability, using a accounting methodology similar to theirs. Richard Vedder and David Stockdale instead constructed from the Parker–Gallman sample a plantation production function, while later Roger Ransom and Richard Sutch used the sample to estimate slave–generated income as a residual share of a plantation's total output, but the conclusion that slavery was profitable remained unaltered.[11]

American Negro Slavery," in National Bureau of Economic Research, *Aspects of Labor Economics: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton, NJ: Princeton University Press, 1962); Edward Saraydar, "A Note on the Profitability of Ante Bellum Slavery," *Southern Economic Journal*, 30 (Apr 1964), 325–32; N. G. Butlin, *Ante–bellum Slavery—Critique of a Debate* (Canberra: Australian National University, 1971). Other contributions to the economic debate over slavery's profitability have been referred to in ch. 1, n. 41.

[11]James D. Foust and Dale E. Swan, "Productivity and Profitability of Antebellum Slave Labor: A Micro Approach," *Agricultural History*, 44 (Jan 1970), 39–62; Richard K. Vedder and David C. Stockdale, "The Profitability of Slavery Revisited: A Different Approach," *Agricultural History*, 49 (Apr 1975), 392–404; Roger L. Ransom and Richard Sutch, *One Kind of Freedom: The Economic Consequences of Emancipation* (Cambridge, UK: Cambridge University Press, 1977), pp. 203–14. A production function is a mathematical equation that hypothetically relates inputs to outputs, a technique we will explore in Chapter 5. For details on the Parker–Gallman sample, consult William N. Parker, ed., *The Structure of the Cotton Economy of the Antebellum South* (Washington: Agricultural History Society, 1970)—which reprints the Foust and Swan article—and Foust, *The Yeoman Farmer and Westward Expansion of U.S. Cotton Production* (New York: Arno Press, 1975). A distribution by state of the slaveholdings in the sample is in Richard Sutch, "The Breeding of Slaves for Sale and the Westward Expansion of Slavery, 1850–1860," in Stanley L. Engerman and Eugene D. Genovese, eds., *Race and Slavery in the Western Hemisphere: Quantitative Studies* (Princeton, NJ: Princeton University Press, 1975). Frederick A. Bode and Donald E. Ginter, "A Critique of Landholding Variables in the 1860 Census and the Parker–Gallman Sample," *Journal of Interdisciplinary History*, 15 (Autumn 1984), 277–95, reveal some of the sample's limitations.

Fogel and Engerman in *Time on the Cross* approached the problem from still another angle. Their researchers gathered 80,000 slave evaluations from the probate records of 54 counties in 8 southern states. Taking these data they constructed several age–price profiles for male and female slaves at different times and locations by averaging values for each age and then using least–squares regression to fit a sixth–order polynomial equation to the averages. This isolated the effects of age and sex on slave prices. From the age–price profiles, Fogel and Engerman worked backwards to calculate profiles of slave earnings (what we have labeled *T*) and rates of return. (See Figure 2.2, from the second volume of *Time on the Cross*. The horizontal axis represents the age of male slaves in the Southeast, whereas the vertical axis measures their prices and earnings as a percent of peak–year price and earnings.) In addition, the two authors supplemented these findings with a new sample of 3,589 invoices of slave sales with information on over 5000 slaves sold in the New Orleans market between 1804 and 1862, and these prices were further analyzed by Laurence J. Kotlikoff, who added dummy variables for specific skills and defects to the age–profile equation in order to isolate the effects of occupation and other individual slave traits.[12]

[12]Fogel and Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), pp. 59–78, v. 2, pp. 54–83; Laurence J. Kotlikoff, "The Structure of Slave Prices in New Orleans, 1804 to 1862," *Economic Inquiry*, 17 (Oct 1979), 496–518; Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989) pp. 64–72, 433 [n. 23–4]; Kotlikoff, "Quantitative Description of the New Orleans Slave Market, 1804 to 1862," in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1. Outside of the Kotlikoff articles, the only place where I have seen coefficients for Fogel and Engerman's polynomial equation actually reported is in Gerald Friedman, "Sources of Data on Slave Occupations: Their Uses and Limitations," in Fogel, Ralph

Prime field hands by the mid–1850s cost upwards of $1,200, or $23,000 in today's prices, and the figure was sensitive to anything that could affect the field hand's future labor: health, skills, gender, reliability—with age being the most important. Prices generally peaked when a slave reached his or her mid-to-late twenties, and then fell off along with the expected number of remaining productive years. A skilled blacksmith commanded a 55 percent premium over this average, whereas a disabled or unreliable slave would sell at a discount of up to 65 percent. Twenty-seven-year-old females averaged 80 percent of the cost of male slaves the same age.[13]

These prices were flexible enough to keep the return on slaves in the South hovering between 8 and 12 percent, comparable to the antebellum return on the capital of New England textile firms or railroad companies. At any one time, a particularly astute planter might exceed these rates, while one who was particularly inept might face insolvency. Over the passage of time, above–normal returns during a cotton boom might signal slaveholders generally to expand

A. Galantine, and Richard L. Manning, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Evidence and Methods* (New York: W. W. Norton, 1992), p. 73.

[13]References to slave prices are ubiquitous throughout the literature. In addition to the works cited in the three previous notes, see Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington: Carnegie Institution, 1933), v. 2, pp. 663–7, and Kenneth M. Stampp, *The Peculiar Institution: Slavery in the Ante–Bellum South* (New York: Alfred A. Knopf, 1956), p. 415–7. Series showing slave prices over time can be found in Phillips, *American Negro Slavery*, p. 371; Alfred H. Conrad and John R. Meyer, *The Economics of Slavery and Other Studies in Econometric History* (Chicago: Aldine, 1964), p. 76; and Roger Ransom and Richard Sutch, "Capitalists Without Capital: The Burden of Slavery and the Impact of Emancipation," *Agricultural History*, 62 (Summer 1988), 133–60. I have deflated the price of a prime field hand to current prices using the composite consumer price index in John J. McCusker, *How Much is That in Real Money?: A Historical Price Index for Use as a Deflator of Money Value in the Economy of the United States* (Worcester, MA: American Antiquarian Society, 1992), pp. 328–32, updated to 1999 using the Consumer Price Index as reported in the *Economic Report of the President: Transmitted to the Congress, February 2000* (Washington: U.S. Government Printing Office, 2000), table B–58, p. 373.

cultivation in order to satisfy mounting industrial demand, as happened during the 1850s; below–normal returns might encourage slaveholders to shift resources away from cotton, as for instance during the deflation of the early 1840s.

But overall, rather than facing economic demise, slavery was thriving right up to the Civil War. Cotton was the American economy's leading sector, comprising half of all exports.[14] For ambitious white Southerners, the primary avenue to greater wealth and status remained slave ownership. "Never before has the planting been more profitable than in the last few years," wrote Professor C. F. McCay of South Carolina in 1860. "The planters have been everywhere rich, prosperous and happy."[15] Yet just because the peculiar institution was profitable to planters, it does not follow that it was beneficial to everyone living in the region.

II

There is another aspect of bondage's profitability worth examination. So far we have been concerned with the returns to those who purchased slaves. But like many other assets, slaves themselves could be produced for sale on the market. So we also must consider the profitability of slavery's supply side. In the scholarly debates over the South's peculiar institution, this has often been elevated to a third, separate question, distinct from profitability and efficiency, and gone under the rubric of slavery's viability. For if the production of new

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[14]Douglass C. North, *The Economic Growth of the United States, 1790–1860* (New York: Prentice Hall, 1961), pp. 75–7, 233.

[15]C. F. McCay, "Cultivation of Cotton," in *Eighty Years' Progress of the United States: A Family Record of American Industry, Energy and Enterprise* (Hartford: L. Stebbins, 1867), p. 116.

slaves was not profitable enough to replenish the population, then as the existing

slaves died off, the institution would have withered away no matter how

remunerative owning slaves may have been.[16]

Slaves have been produced in three primary ways: debt default, capture,

and breeding.[17] Debt bondage is a practice so distinctive that most authorities put

it into a separate category altogether from chattel slavery.[18] Admittedly, debt

bondage *per se* was often imposed for only fixed terms, with other possible

limitations on the creditor's claim. The Code of Hammurabi, for instance,

restricted servitude for debt to no more than three years. But life–time,

unconditional enslavement for default on a loan was so frequent in the ancient

world that it cannot be ignored. This shading of a less encompassing form of

bondage into outright slavery also included those permanently enslaved for a

crime as well as for debt, which amounted to the same thing if the crime victim

was the one who gained title to the bondsman. People fortunate enough to live in

modern, capital–rich economies may find it difficult to appreciate how crucial the

threat of bondage might have been for enforcing long–term contracts in an era

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[16]Yasukichi Yasuba, "The Profitability and Viability of Plantation Slavery in the United States," *Economic Studies Quarterly*, 12 (Sep 1961), 60–7, reprinted in Robert William Fogel and Stanley L. Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971); Evans, "The Economics of American Negro Slavery," pp. 184–243; Richard Sutch, "The Profitability of Ante Bellum Slavery—Revisited," *Southern Economic Journal*, 31 (Apr 1965), 365–77; and Stanley L. Engerman, "The Effects of Slavery upon the Economy: A Review of the Recent Debate," *Explorations in Entrepreneurial History*, 2nd ser., 4 (Winter 1967), 71–97.

[17]I have consolidated and pruned the more comprehensive list of eight sources of slaves from Patterson, *Slavery and Social Death*, p. 105: (1) capture in warfare, (2) kidnapping, (3) tribute and tax payment, (4) debt, (5) punishment for crimes, (6) abandonment and sale of children, (7) self–enslavement, and (8) birth.

[18]Finley, "Slavery"; Ste. Croix, "Slavery and Other Forms of Unfree Labour"; Bush, "Introduction," p. 2; Engerman, "Slavery, Serfdom and Other Forms of Coerced Labour," p. 27.

during which far fewer physical assets, outside of land, were available as collateral. Yet debt bondage has also been the least attractive source of chattel slaves, because as Orlando Patterson has called to our attention, societies are uncomfortable consigning their own members to this kind of social death.[19] In 593 B.C., Solon's Laws abolished enslavement for debt in Athens; early Roman law required that any Roman subject enslaved as punishment had to be sold abroad; and Islamic law always prohibited the enslavement of born Muslims. Over the millennia the treatment of loan default has gradually shifted from debt bondage to debtors prison and finally to bankruptcy, in which wealthy societies can afford essentially to forgive not only the debts of those who are judgment proof but nowadays even those with a modicum of personal property.[20]

Because slavery owes its origins to warfare, enslavement through capture has proved the fundamental way to produce human chattel throughout history.[21] Not only did it provide most of the African millions condemned to the middle passage, as well as those consigned to bondage within the Islamic world, but it

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[19]Patterson, *Slavery and Social Death*. Also Finley, "Slavery"; David Brion Davis, "Slavery and 'Progress'," in Christine Bolt and Seymour Drescher, eds., *Anti–Slavery, Religion, and Reform: Essays in Memory of Roger Anstey* (Flokestone, Kent, and Hamden, CT: Wm Dawson & Sons—Archon Books, 1980); Davis, *Slavery and Human Progress*, pp. 8–22; and Oakes, *Slavery and Freedom*, pp. 3–31.

[20]Yoram Barzel provides an economic analysis of debt bondage in "An Economic Analysis of Slavery," *Journal of Law and Economics*, 20 (Apr 1977), 104–6. For a somewhat speculative historical treatment, see M. I. Finley, "Debt–bondage and the Problem of Slavery," in Brent D. Shaw and Richard P. Saller, eds. *Economy and Society in Ancient Greece* (London: Chatto & Windus, 1981).

[21]On the role of warfare in the origin of slavery, see Jack Goody, "Slavery in Time and Space," in Watson, ed., *Asian and African Systems of Slavery*; and Robert L. Carneiro, "The Chiefdom: Precursor of the State," in Grant B. Jones and Robert R. Kautz, eds., *The Transition to Statehood in the New World* (Cambridge, UK: Cambridge University Press, 1981), p. 65.

was also the foundation for slavery in classical Greece and Rome. At first glance it may appear that pure serendipity governs the number of prisoners-of-war. This indeed might have been true in the ancient world, but even war and kidnapping can be turned into businesses, which is what happened in Africa once the international slave trade was regularized.[22] Yoram Barzel poses the intriguing question of why in Africa, "the thefts of humans continued on a large scale and in a highly organized form for several centuries," whereas elsewhere, such as the Roman Empire, "slaves were acquired only from border and transborder areas." In districts falling under Roman rule, slave looting had been "quickly converted into some form of tribute." He speculates that one factor may have been an absence of stable borders in Africa, which converted the populations of slave producing areas into a common resource, exploitable by several States, none of which held firm title. But this just pushes the question back. Why were African borders so unstable? Was the cause geography, or did significant revenues from slave exports give African rulers less incentive to stabilize their borders?[23]

Whatever the explanation, the price for these captives arose from a derived demand, just as in the case of other factors of production. The worldwide market for sugar, tobacco, rice, and other staples determined what New World planters were willing to pay for slaves, which in turn determined how many resources slave traders were willing to devote to secure and transport their captives.

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[22]Robin Law, *The Slave Coast of West Africa, 1550–1750: The Impact of Atlantic Slave Trade on an African Society* (Oxford: Clarendon Press, 1991).

[23]Barzel, "An Economic Analysis of Slavery," 107–9. Thomas Sowell, *Race and Culture: A World View* (New York: Basic Books, 1994), pp. 195–6, poses the same question.

Competition probably ensured that few of the perpetrators of this vile system secured exorbitant profits over the long run. There is little doubt that European slave traders received the going rate, when we adjust for risks such as seizure after British suppression. Only during the colonial period, when governments granted slave–trade monopolies to privileged companies, might returns have risen above normal, but these too would have been capitalized into the higher price of the companies' shares. We may even reasonably speculate that the profits for the African rulers who first captured the slaves were somewhat competitive, since there were several black States bidding for European buyers.[24]

Historians are still sorting out the impacts of the international slave trade upon Africa, and arguing about how significant was the revenue loss for indigenous governments after the British effectively shut down the trade in the nineteenth century.[25] The economic impact of closing the Atlantic trade for the

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[24]Such is the analysis of Robert Paul Thomas and Richard N. Bean, "The Fishers of Men: The Profits of the Slave Trade," *Journal of Economic History*, 34 (Dec 1974), 885–94; David W. Galenson, *Traders, Planters, and Slaves: Market Behavior in Early English America* (Cambridge, U.K.: Cambridge University Press, 1986), does a cliometric analysis of the Atlantic slave trade at the time of Royal African Company's monopoly and finds the trade still quite competitive. An econometric analysis of the slave trade after its legal suppression is Roger Anstey, "The Profitability of the Slave Trade in the 1840s," in Rubin and Tuden, eds., *Comparative Perspectives on Slavery in New World Plantation Societies*. Also consult Bean, *The British Trans–Atlantic Slave Trade, 1650–1775* (New York: Arno Press, 1975), and Anstey, "The Volume and Profitability of the British Slave Trade, 1761–1807," in Engerman and Genovese, eds., *Race and Slavery in the Western Hemisphere.*

[25]Roger Anstey, *The Atlantic Slave Trade and British Abolition, 1760–1810* (Atlantic Highlands, NJ: Humanities Press, 1975); David Eltis and James Walvin, eds., *The Abolition of the Atlantic Slave Trade: Origins and Effects in Europe, Africa, and the Americas* (Madison: University of Wisconsin Press, 1981); Paul E. Lovejoy, *Transformations in Slavery: A History of Slavery in Africa* (Cambridge, U.K.: Cambridge University Press, 1983); Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade* (New York: Oxford University Press, 1987); Lovejoy, "The Impact of the Atlantic Slave Trade on Africa: A Review of the Literature," *Journal of African History*, 30 (1989), 365–94; Law, *The Slave Coast of West Africa*; Lovejoy and David

Western Hemisphere is easier to conceptualize. Remember that the price of a

bondsman tends toward the discounted present value of his future income stream,

and if you will return to Figure 2.1, you will observe that changes in the supply of

slaves affect the amount of that income. A fall in supply, depicted by shifting **S** to

the left, will increase the equilibrium wage (W) and therefore the amount

transferred from each slave ($T = W - M$)—so long as subsistence costs per slave

(M) remain constant. This means that cutting off the supply of fresh captives

made each slave more valuable. On the other hand, a rise in supply, depicted by

shifting **S** to the right, will decrease the amount transferred and lower the value of

each slave. For older, weaker, and less productive slaves, their output could be

driven below subsistence.

Some have claimed that closing the slave trade therefore gave planters an

incentive to promote their chattels' health and well being, whereas the cheapness

of replacements in the slave trade's heyday encouraged the working of slaves to

death on some of the sugar plantations of the Caribbean. The evidence, although

not conclusive, fails to substantiate this analysis, indicating instead that high slave

mortality was more the result of climate, disease, and other locational factors.[26]

Logic too would suggest that the interest rate was a more important variable in

determining how harshly slaves were treated. The current gain in output extracted

has to exceed the discounted value of the lost future output in order for such

Richardson, "British Abolition and Its Impact on Slave Prices Along the Atlantic Coast of Africa, 1783–1850," *Journal of Economic History*, 55 (Mar 1995), 98–119.

[26]Eltis, *Economic Growth and the Ending of the Transatlantic Slave Trade*, pp. 185–204, 232–40, reviews the impact of closing the Atlantic trade in the Western Hemisphere; Fogel, *Without Consent or Contract*, pp. 127–32, 142–7, offers an excellent summary of the evidence on New World slave mortality.

barbaric behavior to make economic sense, and that holds irrespective of how costly it was to purchase slaves. (Of course, this incentive would be somewhat less compelling for a hired overseer with an absentee owner.) We can be confident, however, that the causation did operate in the opposite direction; the ready availability of inexpensive captives is what made possible this system's introduction into and fastening upon the New World. Only so long as the Atlantic trade kept supplies high and slaves inexpensive did it pay planters to exploit them along the tropical frontiers where mortality rates were highest.

Of all three sources for slaves, raising them may have been responsible for the greatest number overall, according to Patterson.[27] Yet it has rarely proved sufficient to perpetuate the institution. When slaves have been produced in this manner, they were almost always the offspring of slave parents, although there have been instances of free parents so destitute that they sold their own children, as well as instances of raising orphans and foundlings for slavery. Breeding did not figure prominently in ancient or medieval slavery, and among New World economies, only in North America was the slave population reproducing itself by the mid–eighteenth century. In fact, it grew at a faster rate than European populations. Virtually everywhere else, the persistence of human bondage depended upon continued importation. Brazil and the Caribbean islands received more than 85 percent of the 10 million Africans forcibly shipped across the Atlantic from the sixteenth through the nineteenth century, but by 1825 the U.S.

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[27]Patterson, *Slavery and Social Death*, p. 132–3.

slave population of 1,750,000 accounted for more than one–third of all slaves in the Western Hemisphere.[28]

What conditions made slave breeding profitable can be elucidated by gazing again at equations 2.1 and 2.2. Due to the costs of raising children to adulthood, the annual amount the master expropriated from the slaves output, T, was negative throughout a slave's early life. In the antebellum South, for instance, it only turned positive around age 10, as is apparent in Figure 2.2.[29] Although the total net earnings during a slave's prime years almost always, except in case of early death or disability, exceeded rearing costs, that income was uncertain and in the distant future at the time of the slave's birth; therefore it was more heavily discounted. The value of a newborn slave depended not just on how large the future transfers would be, but on the interaction between that factor, the interest rate, i, and the slave's life expectancy, n. Anything that increased the value of the bondsman's expected output, or that lowered mortality or interest rates, increased the price at birth—and vice versa. The high mortality of Caribbean slaves therefore made their birth–price negative and discouraged planters from breeding them, whereas closing the African slave trade worked in the opposite direction by increasing slave values.

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[28]Philip D. Curtin, *The Atlantic Slave Trade: A Census* (Madison: University of Wisconsin Press, 1969), p. 268; Paul E. Lovejoy, "The Volume of the Atlantic Slave Trade: A Synthesis," *Journal of African History*, 23 (1982), 473–501; Lovejoy, "The Impact of the Atlantic Slave Trade on Africa"; and Fogel, *Without Consent or Contract*, pp. 18, 33–4, 123–6. A good general history is James A. Rawley, *The Transatlantic Slave Trade: A History* (New York: W. W. Norton, 1981).

[29]Fogel, *ibid.*, p. 53.

Newborn slaves in North America did have a positive price from at least 1810 on. By 1850 it had reached by various estimates somewhere between $30 and $200.[30] But that alone was not sufficient to make breeding worthwhile to slaveholders. These births also incurred opportunity costs: the foregone field labor of pregnant females and the increased risk of the mother's death during childbirth. Raising human chattel only became profitable when the price of newborns rose high enough to bid female slaves away from alternative employments. Although slave births were partially exogenous, planters definitely could affect their frequency. Slaveholders in the Caribbean, especially before the ending of slave imports, cut down births drastically by maintaining sex ratios strongly skewed in favor of males. Even within the United States in the years prior to the Civil War, planters valued the gang labor of females so highly that they worked pregnant slaves to the eve of childbirth and then weaned their infants early to get the women back into the fields.

In the debate set off by Conrad and Meyer, Yasukichi Yasuba of Kyoto University was the first to focus on the returns to raising slaves as the true indicator of whether the peculiar institution was viable. Rather than looking at the value of slaves at birth, for which there was little direct evidence, Yasuba compared slave prices at age eighteen with the costs of raising them to that age.

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[30]Fogel and Engerman, *Time on the Cross*, v. 2, p. 123, give the lower estimate, based not on direct observations but on the age–price profiles generated by their polynomial equation. Herbert G. Gutman and Richard Sutch, "Victorians All?: The Sexual Mores and Conduct of Slaves and Their Masters," in Paul A. David, *et. al.*, *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery* (New York: Oxford University Press, 1976), p. 159, provide higher estimates. Other estimates are in T. Bergstrom, "On the Existence and Optimality of Competitive Equilibrium in a Slave Economy," *Review of Economic Studies*, 38 (Jan 1971), 31.

Calling the difference "capitalized rent," he found that it was positive and rising in the late 1840s and 1850s.[31] This inference, by the way, should come out exactly the same no matter what age Yasuba chose. If the current price of eighteen–year old slaves, representing their expected future earnings, exceeded net rearing costs (adding accumulated interest and losses from infant mortality), then the price of slaves at birth must necessarily have been high enough to compensate planters for the lost field work of pregnant slaves. Observe that net rearing costs are simply the present value of the slave's *past* net earnings, with the signed reversed. Positive net rearing costs (including a prorated share of money spent on slaves who did not survive) translate into negative net earnings, and vice versa. At *any* stipulated age, Yasuba's capitalized rent merely adds the present value of a slave's anticipated future net earnings to the present value of the slave's past net earnings. Thus, a slave's value at birth minus pregnancy costs is logically equivalent to the *discounted* capitalized rent that slaveholders *anticipate* at the time of birth for any age. It is the same expected income stream, just being reduced to a single number at different points in time.[32]

The income from breeding slaves did not, however, permanently raise the overall rate of return to slaveholders. Flexible prices ensured that it, too, was capitalized into the market value of female slaves. The anticipated transfers (T*s) that determined the female's market price included not only expected future output of cotton and other crops but expected future births. These potential births

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[31]Yasuba, "The Profitability and Viability of Plantation Slavery in the United States."

[32]Bergstrom, "On the Existence and Optimality of Competitive Equilibrium in a Slave Economy," 30–1, makes this point.

added 8 to 10 percent to the price of female slaves at the start of their child–bearing years.[33] Thus, raising slaves in the southern United States yielded approximately the same return as working them in the fields. The high capitalized rent found by Yasuba, while not providing any greater long–run profits, did however imply that individual slaveowners could increase their profits *temporarily* if they figured out some low cost way to make the slave population grow even faster—either by increasing female fecundity or by reducing infant mortality. This incentive for expanded breeding would have continued until the slave economy reached an eventual long–run equilibrium where the price at birth minus pregnancy costs was zero.

The extent of slave breeding in the Old South became one of those issues over which the claims of *Time on the Cross* worked at cross purposes. Breeding figured prominently in the returns that Conrad and Meyer attributed to the peculiar institution. Fogel and Engerman markedly reduced Conrad and Meyer's estimates of pregnancy costs, confirmed Yasuba's findings of high capitalized rents, and claimed that infant mortality among black slaves was "virtually the same" as among southern whites, all of which would lead one to suspect that slaveholders had a strong motive to see their chattel reproduce. Yet at the same time, Fogel and Engerman claimed that "*systematic* breeding of slaves for *sale* to

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[33]The higher estimate is from Fogel and Engerman, *Time on the Cross*, v. 1, p. 83. The lower estimate is a downward revision that appears in Robert William Fogel, "Was the Overwork of Pregnant Women Profit Maximizing," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, p. 325.

the market" was a myth.[34] Richard Sutch and Herbert Gutman were the most

vigorous in disputing this conclusion and defending the slave–breeding

hypothesis.[35]

Subsequent research from Richard H. Steckel, particularly on slave

heights, has resolved much of this controversy. He documented that, whereas

adult slaves were relatively healthy and well fed when compared with free whites

in the United States and Europe, the rates of infant mortality and child

malnourishment among slaves were exceptionally high. Steckel's estimate of

black infant mortality, 350 per 1000, was more than double the rate for white

children, and he found that slave children were over five inches shorter than

modern children.[36] Indeed, "[c]omparative heights suggest that children from the

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[34]Fogel and Engerman *Time on the Cross*, v. 1, pp. 78, 124. In v. 2, p. 123, the authors assert that "for the late ante–bellum period, pregnancy costs were a small fraction of the [\$30] zero–age price." Conrad and Meyer, *The Economics of Slavery and Other Studies in Econometric History*, p. 64, on the other hand, had estimated the value of field labor foregone because of pregnancy at \$16 per birth plus nursery costs at \$50 per birth, for a total of \$66.

[35]Sutch, "The Breeding of Slaves for Sale and the Westward Expansion of Slavery"; Gutman and Sutch, "Victorians All?," pp. 154–61; Sutch, "Breeding, Slave," in Randall M. Miller and John David Smith, eds., *Dictionary of Afro–American Slavery* (New York: Greenwood Press, 1988). A response to these articles is Robert W. Fogel and Stanley L. Engerman, "The Slave Breeding Thesis," in Fogel and Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2 (New York: W. W. Norton, 1992). From the same volume, see also Richard H. Steckel, "Children and Choice: A Comparative Analysis of Slave and White Fertility in the Antebellum South." Michael Tadman, *Speculators and Slaves: Masters, Traders, and Slaves in the Old South* (Madison: University of Wisconsin Press, 1989), covers the workings of the domestic slave trade.

[36]Robert A. Margo and Richard H. Steckel, "The Heights of American Slaves: New Evidence on Slave Nutrition and Health," *Social Science History*, 6 (Fall 1982), 516–38; Steckel, "Birth Weights and Infant Mortality among American Slaves," *Explorations in Economic History*, 23 (Apr 1986), 173–98; Steckel, "A Peculiar Population: The Nutrition, Health, and Mortality of American Slaves from Childhood to Maturity," *Journal of Economic History*, 46 (Sep 1986), 721–42; Steckel, "A Dreadful Childhood: The Excess Mortality of American Slaves," *Social Science History*, 10 (Winter 1986), 427–65. Fogel in *Without Consent or Contract*, pp. 138–47, admirably summarizes Steckel's research and addresses its implications for pregnancy costs. See also Steckel, "Growth and Development in the Antebellum South: Old Debates and New

slums of Lagos, Nigeria, and from urban areas of Bangladesh had an environment for growth superior to that of American slave children."[37] This was primarily the result of southern planters overworking pregnant mothers and weaning infants early. In other words, Fogel and Engerman were right about slave breeding because they were wrong about black infant mortality. Yasuba's estimates of capitalized rent were too high; slaveowners were already operating very close to long–run equilibrium. Fogel has openly incorporated this revision into the supplementary volumes of *Without Consent or Contract*.[38] Nevertheless, there is little reason to doubt that the capitalized rent was climbing at the end of the 1850s, given the climbing prices for adult slaves. The bottom line: the rearing of slaves was an industry destined to expand until interrupted by the Civil War.

III

So far we have looked at the profitability of owning slaves, which was the largest component of this market's demand side in the Old South. We have also looked at the profitability of producing slaves either through capture or breeding, which constituted the market's supply side and which was referred to in the scholarly debates as slavery's viability. Slave breeding has another, corollary

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Directions," in Lou Ferleger, ed., *Agriculture and National Development: Views on the Nineteenth Century* (Ames: Iowa State University Press, 1990); and Jeremy Atack and Peter Passell, *A New Economic View of American History: From Colonial Times to 1940*, 2nd edn. (New York: W. W. Norton, 1994), pp. 341–9.

[37]Steckel, "A Dreadful Childhood," 430.

[38]Gerald Friedman, Ralph A. Galantine, and Robert William Fogel, "The Debate over the Economic Viability of Slavery," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, pp. 199–205; Fogel, "Was the Overwork of Pregnant Women Profit Maximizing." Fogel now estimates pregnancy costs, including lost field labor, at $17.35, 58 percent of his $30 estimate of birth price.

issue that gave the *Time on the Cross* controversy one of its more bizarre flourishes. That was the attempt to measure the rate of slave expropriation. Slavery's profitability hinges on this expropriation; the institution could not exist one moment without it. Yet the *rates* of profit and of expropriation have no necessary relationship. The fact that owners and producers of slaves both generally received the going rate of return reveals nothing about the severity of slave exploitation.

We have already observed in Figure 2.1 how slavery operates like theft. A certain portion of the wage a slave would have earned if free and doing the same work is coercively redistributed to his owner. And the future stream of these expected transfers $(T_t^* = W_t^* - M_t^*)$ as discounted in formula 2.1 or 2.2 is what determines the slave's market price. In other words, purchasing a bondsman was essentially gaining legal title to this future expropriated income. We have also observed that the size of these transfers, as Fogel and Engerman themselves pointed out, "differed from slave to slave, as well as from year to year for particular slaves."[39]

The authors of *Time on the Cross*, however, wanted a single number that would represent the average rate of expropriation for all slaves in the Old South. So what they did was take the present value of the *expected* stream of transfers at the time of the slave's birth and divide it by the present value of the slave's *expected* future outputs, $W_t^* = T_t^* + M_t^*$, as in formula 2.3, where E is the rate of expropriation:

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[39]Fogel and Engerman, *Time on the Cross*, v.1, p. 153; also v. 2, p. 119.

$$(2.3) \qquad E = \frac{\sum_{t=0}^{n}\left[T_t^* / (1+i)^t\right]}{\sum_{t=0}^{n}\left[W_t^* / (1+i)^t\right]}$$

This formula applies to an individual slave, but it can be transformed into an average rate for all slaves simply by using average values for the T^*s and W^*s. After doing this, Fogel and Engerman came up with an expropriation rate between 10 to 12 percent, "well within the modern tax rate on workers."[40] The implication was that the average slave, over his or her entire life, received from the master in the form of food, clothing, housing, and other payments in kind or money, up to 90 percent of what a free laborer would have earned, before taxes, doing exactly the same work.

Notice, however, that equation 2.3's numerator is merely equation 2.2 for a newborn slave, the price at birth. In other words, what Fogel and Engerman were actually doing is offering an alternative way of expressing what Yasukichi Yasuba had tried to measure, the capitalized rents on breeding slaves (with a little fudging on pregnancy costs). For if the production of slaves reached a long–run equilibrium, where the value at birth minus pregnancy costs was zero, then the rate of expropriation would also be approaching zero, even though both raising and owning slaves continued to be as profitable as any other venture. In fact, Fogel and Engerman themselves pointed out that where birth prices were negative, such as in Jamaica, the rate of expropriation was also negative. Slaves in

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[40]*Ibid.*, v. 1, p. 156–7.

such societies seemed to be receiving more income over their lives than they were actually producing.

Critics of *Time on the Cross* had a field day. "According to Fogel and Engerman's way of putting things," wrote Paul A David and Peter Temin, "the negative price for newborn infants meant that Jamaican slaves were exploiting their owners!"[41] Fogel and Engerman were well aware of the perverse implications of their measure of expropriation. They emphasized that one reason the rate ended up so low was because "a substantial part of the income taken from those slaves who survived into the later years was . . . a payment required to cover the expenses of rearing children who failed to reach later ages." In effect, adult slaves were assumed to be paying back the costs—at 10 percent interest—of raising not only themselves but those who failed to survive. Fogel and Engerman justified this assumption with the observations that "intergenerational transfers of income were not, of course, limited to slave society. They took place among free men as well. For free men must also bear the cost of rearing the young, including those who fail to survive."[42] But as David and Temin cogently responded:

> Free people, however, ordinarily are not required to borrow money for the expenses of their childhood. They are supported by their parents and more generally by their parents' generation. And when they become adults they do not repay their parents with compound interest for the pecuniary cost of their own early years—much less for the upbringing of their brothers and

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[41]Paul A. David and Peter Temin, "Slavery: The Progressive Institution?", in David, *et. al.*, *Reckoning with Slavery*, p. 196. This article appeared originally in the *Journal of Economic History*, 34 (Sep 1974), 739–83.

[42]Fogel and Engerman*, Time on the Cross*, v. 1, pp. 154, 155.

sisters prematurely deceased. In turn, they support children of their own. Thus, the way such intergenerational transfers of income are effected among the members of free societies does not confront individuals with costs of raising children and supporting elderly dependents when they themselves are children, but rather allows them to assume these burdens contemporaneously with income they earn in their adulthood.[43]

Roger L Ransom similarly questioned what he characterized as a "rather strange system of social accounting."[44] All this acrimony could have been easily avoided if Fogel and Engerman had confined themselves to talking about the viability of raising slaves and resisted the temptation to parade this result as some kind of indicator of exploitation. *Time on the Cross*'s dubious handling of intergenerational transfers among slaves is especially evident with respect to pregnancy costs. To be completely consistent, the authors should have subtracted pregnancy costs (M_p) from the slaves price at birth, altering equation 2.3 into equation 2.4:

$$(2.4) \qquad E = \frac{\sum_{t=0}^{n}\left[T_t^*/(1+i)^t\right] - M_p}{\sum_{t=0}^{n}\left[W_t^*/(1+i)^t\right]}$$

After all, if adult slaves must in the name of intergenerational transfers have paid off their rearing costs at interest, why not also the income that

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[43]David and Temin, "Slavery: The Progressive Institution?", p. 197. Sebastian Pinera and Laurence Kotlikoff respond to David and Temin's criticism in "The Exploitation–Expropriation Debate," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, pp. 383–7. They admit that Fogel and Engerman's comparison with modern tax rates was "spurious," since tax rates do not adjust for intergenerational transfers; these rates are undiscounted percentages of full adult income. Otherwise the reply is obtuse.

[44]Roger L. Ransom, "Was It Really All That Great To Be A Slave? A Review Essay," *Agricultural History*, 48 (Oct 1975), 585.

slaveholders had foregone by allowing them to be born in the first place? This would have yielded an even lower rate of expropriation. But instead, Fogel and Engerman implicitly charged pregnancy costs only to the mother while she was an adult, reducing the overall impact on the rate of expropriation. But if these costs can be assigned to the mother's generation, why not all rearing costs?

This is in fact what other new economic historians did when they offered alternative measures of expropriation. They calculated an *undiscounted* rate, E', as in formula 2.5, with bars over the values indicating averages:

(2.5) $$E' = \frac{\overline{T}}{\overline{\overline{W}}}$$

So long as you use values of $\overline{T}$ and $\overline{W}$ gathered from a large enough slave population for a single year, including infants, rearing costs are captured, even for those who do not survive to adulthood, but without any interest charges added in. Equation 2.5 is a measure that we can more legitimately contrast with modern tax rates, although even it is not high enough to be strictly comparable. The result subtracts out any and all benefits or transfers received by slaves whereas of course tax rates do not. Calculating exploitation in this fashion, Richard Vedder came up with a rate of 65 percent, whereas Roger Ransom and Richard Sutch estimated between 54 and 59 percent. They both relied on the census data in the Parker–Gallman sample to estimate the average slave's marginal productivity $\overline{W}$, constructed estimates of the average slaves consumption $\overline{M}$, and then derived the average transfer as the difference $(\overline{T} = \overline{W} - \overline{M})$.[45]

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[45]Richard K. Vedder, "The Slave Exploitation (Expropriation) Rate," *Explorations in Economic History*, 12 (Oct 1975), 453–7; Ransom and Sutch, *One Kind of Freedom*, pp. 2–4, 203–12.

Fogel and Engerman also calculated their own undiscounted rate of expropriation—49 percent—and buried it in the second volume of *Time on the Cross*. But they used a slightly different measure, E'', as in formula 2.6:[46]

$$(2.6) \qquad E'' = \frac{\sum_{t=0}^{n} T_t^*}{\sum_{t=0}^{n} W_t^*}$$

Here the numerator and denominator are not average values for an entire slave population, but expected values over the average slave's life, calculated directly on the basis of slave prices. Adding age–specific estimates of slave consumption (*M*), which are higher than everyone else's, Fogel and Engerman arrived at an age–specific profile of expected marginal productivity (W^*) for the average slave. In other words, whereas Vedder and Ransom–Sutch had used data on *W* and *M* to derive *T*, Fogel–Engerman started with estimates of *T* and *M* to derive *W*. Insofar as slave prices reflect any risk aversion on the part of slaveholders, the prices will generate calculations of actual productivity that are too low, and even Fogel and Engerman's undiscounted method of measuring slave exploitation will be biased downward.[47] Susan Previant Lee and Peter

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Although relying on the same basic data, the two studies used differing methods to estimate *W*, exactly as their authors had done in the calculations of slave profitability mentioned above. Vedder applied the production function from Vedder and Stockdale, "The Profitability of Slavery Revisited," to determine labor's share of the income of southern farms, while Ransom and Sutch subtracted capital and other costs from farm income and assigned the residual to labor.

[46]The undiscounted formula that Fogel and Engerman gave in *Time on the Cross*, v. 2, p. 125, was actually erroneous, as David and Temin pointed out in, "Slavery: The Progressive Institution?", p. 188, where they provide the correct formula.

[47]Risk aversion reduces both the numerator and denominator of Equation 2.6 (and 2.4 as well) by the same absolute amount. But since the denominator necessarily starts out a larger number, the combined affect is to bias the expropriation rate downward. Pinera and Kotlikoff, "The

Passell therefore took numbers found in *Time on the Cross* that did not come from slave prices and entered them into formula 2.5 (rather than 2.6), to come up with still another set of estimated expropriation rates that fell within the range of 50 to 54 percent.[48]

A summary of these various undiscounted results is provided in Table 2.1. Given their similarity, despite different derivations, we can be reasonably sure that on average over half the lifetime income that the slave would have earned at the same job as a free laborer instead enriched slaveholders. Notice the huge, ironic disparity between these estimated rates of expropriation and the rate of return. On average slaveholders earned 10 percent—no more than other investors owning factories that employed free labor—after depriving slaves of at least 50 percent of the income they generated. That is, deprived them of 50 percent of what they would have earned as free laborers in the exact same jobs. Could a system that transformed such massive losses for slaves into such marginal gains for masters be, at the same time, efficient for the economy overall? That is a question we will start to take up in the next chapter.

Exploitation–Expropriation Debate," p. 386, dispute this point, arguing that the denominator of these equations omits an implicit insurance premium the slaveholder must pay for his risk aversion. What they in effect are claiming is that risk *should* be deducted from the numerator but *should not* be deducted from the denominator, and since the actual calculations deduct it from both, they are biased upward rather than downward. But this amounts to treating the insurance *cost* to the master as a *benefit* to the slave, just like the food and clothing that the slave receives. Surely this is another instance of what Ransom has dubbed a "rather strange system of social accounting."

[48]Fogel and Engerman, *Time on the Cross*, v. 2, p. 125, 159; Susan Previant Lee and Peter Passell, *A New Economic View of American History: From Colonial Times to 1940*, 1st edn. (New York: W. W. Norton, 1979), p. 206. To be more precise, Lee and Passell took the labor coefficient from Fogel and Engerman's production function for southern farms (58 percent) and applied it to Ransom and Sutch's estimates of net output per slave to derive $\overline{W}$.

FIGURE 2.1: Market for Slave Labor
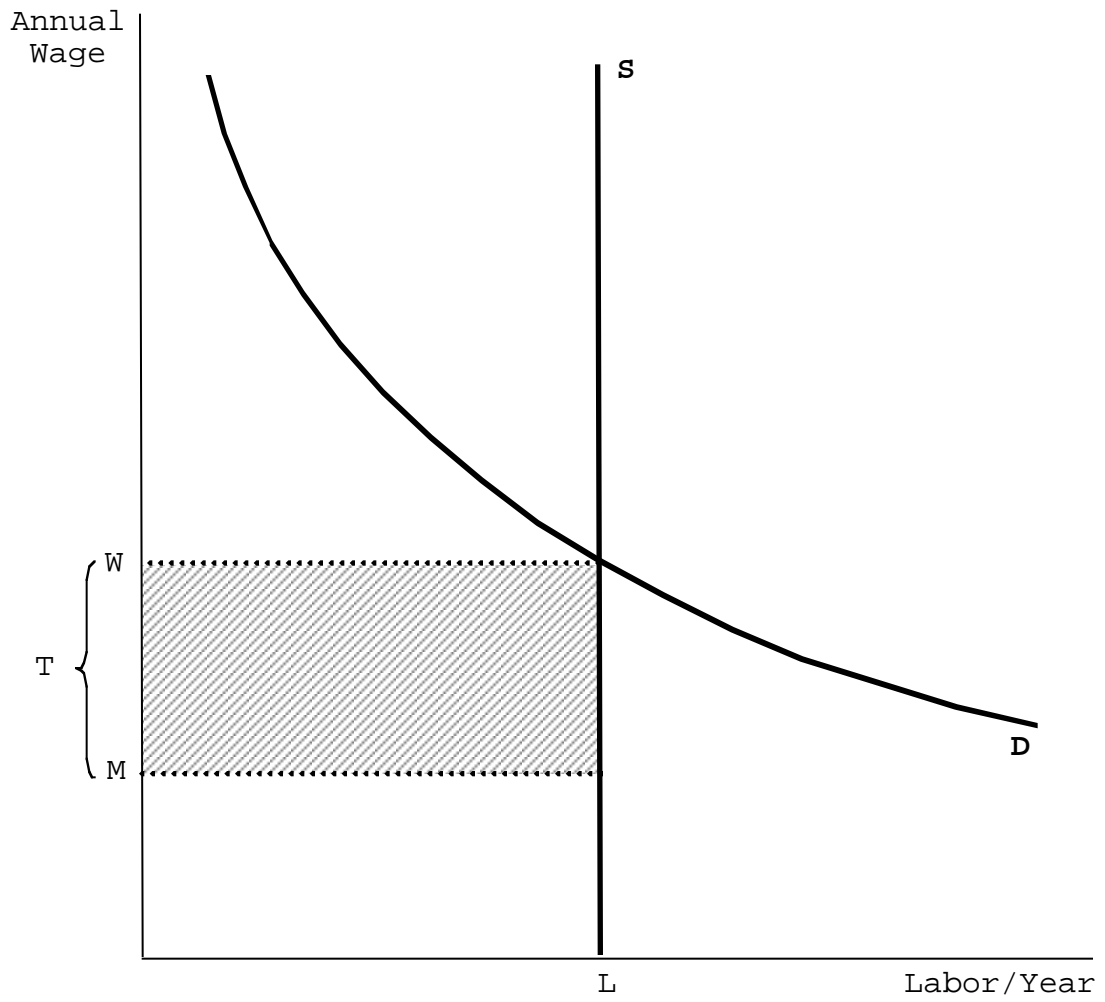
FIGURE 2.2:

Price and Earnings Profiles of Male Slaves in the Old South

(as percent of peak–year price and earnings)
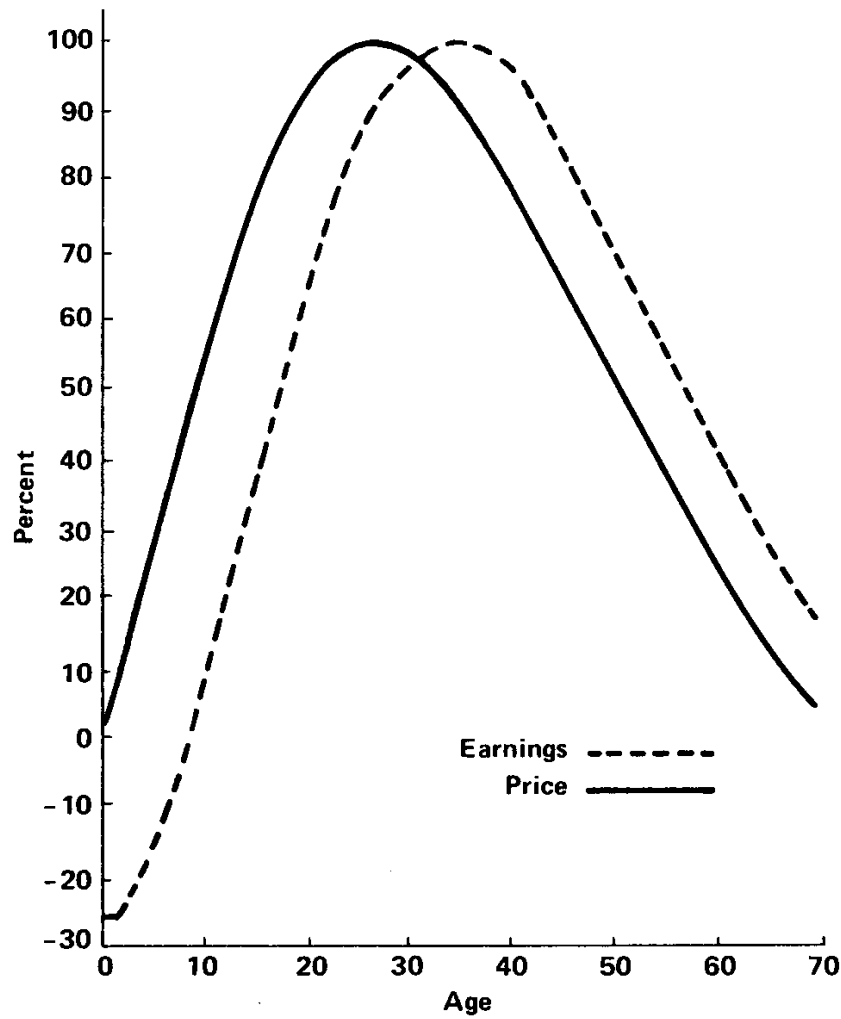
Source: Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 2, *Evidence and Methods—A Supplement* (Boston: Little, Brown, 1974), p. 82.

TABLE 2.1
Undiscounted Estimates of Slave Exploitation for 1860

| | VEDDER | RANSOM–SUTCH | | | FOGEL–ENGERMAN | |
| | Based on Farm Income | Based on Farm Income | | Based on Slave Prices | Based on Farm Income | |
		All Slave Farms	Large Plantations		All Slave Farms	Large Plantations
Labor Share	42.0%	49.0%	53.3%		58.0%	58.0%
Labor Income /Year(W)	$85.76	$62.46	$78.78		$73.98	$85.80
Slave Consumption /Year (M)	30.00	28.95	32.12		34.13	42.99
Transferred Income /Year (T)	55.76	33.51	46.66		39.85	42.81
Rate of Expropriation (E)	65%	54%	59%	49%	54%	50%

Sources: Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), pp. 125, 159; Richard K. Vedder, "The Slave Exploitation (Expropriation) Rate," *Explorations in Economic History*, 12 (Oct 1975), 453–7; Roger L. Ransom and Richard Sutch, *One Kind of Freedom: The Economic Consequences of Emancipation* (Cambridge, UK: Cambridge University Press, 1977), pp. 2–4, 203–12; Susan Previant Lee and Peter Passell, *A New Economic View of American History: From Colonial Times to 1940*, 1st edn. (New York: W. W. Nortion, 1979), p. 206.

Chapter 3
Slavery and Efficiency

I

Robert Fogel and Stanley Engerman's contention about slavery's profitability turns out to have been right but not original. On the other hand, their contention about slavery's efficiency was mostly original but also wrong. To appreciate how individual profit might fail to generate economy–wide advantages, consider another contentious issue that tended to alienate Southerners from Northerners: the tariff. A protective trade barrier such as the 1828 Tariff of Abominations, which pushed up prices of competing imports, clearly benefited some domestic producers. Yet it hurt domestic buyers because they then had to pay the higher prices. Economic theory proves, with only a few technical exceptions that almost never obtain in the real world, that the losses from trade restrictions exceed the gains. The Tariff of Abominations not only redistributed income from Southerners and other consumers to northeastern manufacturers but in the process made the average American poorer. While profiting protected interests, the tariff harmed the country.[1]

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[1]Cliometricians have been tireless in their efforts to discover if the antebellum tariff did indeed fit those rare exceptions where it might have raised American income overall. See Paul David, "Learning by Doing and Tariff Protection: A Reconsideration of the Case of the Ante–Bellum United States Textile Industry," *Journal of Economic History*, 30 (Sep 1970), 521–601; Clayne L. Pope, "The Impact of the Ante–Bellum Tariff on Income Distribution," *Explorations in Economic History*, 9 (Summer 1972), 375–421; Bennett D. Baack and Edward J. Ray, "Tariff Policy and Income Distribution: The Case of the United States, 1830–1860," *Explorations in Economic History*, 11 (Winter 1973/74), 103–21; John A. James, "The Welfare Effects of the Antebellum Tariff: A General Equilibrium Analysis," *Explorations in Economic History*, 15 (Jul 1978), 231–56; James, "The Optimal Tariff in the Antebellum United States," *American Economic Review*, 71 (Sep 1981), 726–34; and Mark Bils, "Tariff Protection and Production in the Early

To substantiate such conclusions, economists rely upon a concept of efficiency that is much refined from the days of Adam Smith, who probably never used that particular word in this way. Unfortunately, the gain in precision and rigor has been accompanied by some complexity and misunderstanding, not only for the general public but sometimes for economists themselves. So we must clarify what they really mean by this simple sounding but elusive term.

To begin with, efficiency is an abstract standard. It has two aspects: productive efficiency and allocative efficiency. Productive efficiency (also sometimes known as technical efficiency or X–efficiency) asks the question, are we producing as much as possible, *given* the scarcity of the factors of production? Can we use the exact same factors—labor, land, capital—to produce more of one thing, without producing less of another? Or can we produce the same output by using less of one factor without using more of another? If not, we are productive efficient. For instance, a southern plantation that could grow more cotton without increasing how long or hard its slaves worked, or tilling more land, or requiring more supervision by the planter, or utilizing any other factor more intensively, or reducing its production of corn or any other output, would not qualify as productive efficient.

U.S. Cotton Textile Industry," *Journal of Economic History*, 44 (Dec 1984), 1033–45. After all this effort, we can be confident of the conclusion rendered in two articles by C. Knick Harley: "International Competitiveness of the Antebellum American Cotton Textile Industry," *Journal of Economic History*, 52 (Sep 1992), 559–84, and "The Antebellum Tariff: Food Exports and Manufacturing," *Explorations in Economic History*, 29 (Oct 1992), 375–400. The tariff was inefficient; it not only redistributed wealth from farmers and planters to manufacturers and laborers but overall made the country poorer. Jonathan J. Pincus, *Pressure Groups and Politics in Antebellum Tariffs* (New York: Columbia University Press, 1977), is a public–choice analysis of the special interests that clamored for protection. All these studies supersede John G. Van Deusen's earlier but still valuable effort to calculate the *Economic Bases of Disunion in South Carolina* (New York: Columbia University Press, 1928).

Allocative efficiency (sometimes known as utility efficiency or consumer efficiency) asks the question, are we producing the mix of goods and services that people value most, and are they going to those who value them most, *given* people's existing preferences? Is there any way we can produce something more urgently desired than what we are producing already, or allocate it to someone who desires it more? If not, we are allocative efficient. In sum, efficiency requires that all possible transactions with mutual gains have taken place. If so, the economy is both productive and allocative efficient. Without creating any new resources or altering people's preferences, there is no imaginable change in production or allocation that would bring net benefits. We cannot make any person better off without making another worse off. Such a condition economists label "Pareto optimal," after the Italian economist Vilfredo Pareto.[2]

Efficiency defined in this fashion has several critical features that require emphasis. First, it is a utopian optimum that may be unattainable in the real world. An economy may not meet this standard due to either "market failures" or "government failures." We have one or the other if we can imagine just a single transaction that would make at least one person better off without making anyone else worse off. Thus, market failure and government failure are pervasive, and

[2]Efficiency and Pareto optimality are presented in nearly all intermediate microeconomics texts, but the discussion I find the most illuminating and accessible, without sacrificing rigor, is in David D. Friedman, *Price Theory: An Intermediate Text*, 2nd edn. (Cincinnati: South–Western, 1990), pp. 434–54. Economics, here as elsewhere, has a plethora of redundant terminology, which non–economists justifiably find annoying and confusing. One reason why the dismal science so often has three or four different terms to describe the same concept is that each of the terms arose in different contexts, at first unrelated, and only after much discussion and controversy in the professional literature did economists finally realize that they were talking about the same thing. Indeed, some current economists still use slightly different definitions than those I have stipulated for various of the terms above, and one must be alert to these semantic pitfalls when reading their writings.

there is no guarantee that they can be corrected. We are "comparing actual situations with better but nonexistent ones," to borrow a phrase from one popular economics text.[3] It is like comparing someone's health with perfect health and calling the discrepancy "biological failure." Very often the realistic choices are between one imperfect, sub–optimal state of affairs and another.

Efficiency, furthermore, is a positive rather than a normative standard, and in that respect is like *ex post* profitability. As David Friedman has pointed out, "it is quite easy to think of reasons why efficiency in the economist's sense might not always be desirable." Although efficiency is not normative, it has implications about people's well being. Productive efficiency by itself can be evaluated knowing almost nothing about people's subjective tastes, but allocative efficiency hinges upon those tastes. It is meaningless without them. Under nearly all circumstances, economists cannot determine whether growing corn instead of cotton would be more or less efficient without introducing (through relative prices) how people evaluate the consumption goods that result from those two products. And to do so, we must accept "each person's evaluation of how much something is worth to him; the value of heroin to the addict has the same status as the value of insulin to the diabetic." Thus, just as an opinion poll is an objective, positive statement about people's expressed, subjective views, efficiency makes an objective, positive assessment of whether some economic change would make people better or worse off, according to their own demonstrated values.[4]

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[3]Paul Heyne, *The Economic Way of Thinking*, 5th edn. (New York: Macmillan, 1987), p. 144.

[4]Friedman, *Price Theory*, pp. 434, 441.

Because efficiency measures well being, it also depends upon whatever distribution of resources with which the economy starts out. If you transfer wealth from those who prefer sugar, say, to those who like tobacco, you may alter what outcome is allocative efficient. Accepting initial property endowments, economists try to determine if there is any way to rearrange resources so that at least one person is better off without making anyone else worse off. If not, the economy is Pareto optimal. Thus, efficiency has nothing to say, positive or negative, about any particular distribution of wealth. Nor, in its most rigorous formulation, can efficiency evaluate the involuntary transfers that result from stealing, slavery, tax collection, or other forms of redistribution. This limitation is known among philosophers as the problem of interpersonal utility comparison. Since we cannot observe individual tastes directly, we only know whether someone prefers sugar to tobacco through such actions as purchasing one rather than the other. In the case of coercive redistribution, there is no unit for measuring subjective gains and losses. We do know that expropriating half the slave's income made the master better off and the slave worse off, but we do not know by how much.

This limitation, if rigidly adhered to, severely inhibits the practical usefulness of efficiency, since most policy changes in the real world affect transfers. Return again to the tariff. A tariff, we have said, is almost always inefficient, whereas an economy without one could be Pareto optimal. It does not follow, however, that repealing the tariff is an economic improvement. Tariffs, like slavery, involve coercive transfers. Repealing the tariff makes consumers *subjectively* better off and protected producers *subjectively* worse off, but we

cannot be sure to what extent. If we determine that the tariff is inefficient, all we know with certainty is that there is *some* set of voluntary payments from the victims of the tariff to its beneficiaries that would make everyone happier. With a tariff repeal, however, those payments are not in fact made, so we cannot be confident that there were actual net gains. Or to switch the example to slavery, if a bondsman purchased his liberty from his owner, we know that both parties benefited. It was a Pareto improvement. Yet we cannot say with equal assurance that liberating the slave without compensation would also have been a Pareto improvement, as plausible (and just) as it may strike us.

Economists therefore cannot quantify a transfer's effects on well–being precisely. The food, clothing, shelter, and other payments in kind that slaves received came to somewhere near $30 per year at 1860 prices.[5] This was adequate to give the American slave a life expectancy of nearly 30 years, significantly less than rural whites, but comparable to urban populations both in the United States and Europe.[6] Yet surely these expenditures did not provide the slaves as much

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[5]Kenneth M. Stampp, *The Peculiar Institution: Slavery in the Ante–Bellum South* (New York: Alfred A. Knopf, 1956), p. 406, finds that subsistence "seldom exceeded $35." Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 2, *Evidence and Methods—A Supplement* (Boston: Little, Brown, 1974), p. 117, estimate $34.13 per year at 1860 prices for the average slave, and $48.12 per year for adult males. Roger L. Ransom and Richard Sutch, *One Kind of Freedom: The Economic Consequences of Emancipation* (Cambridge: Cambridge University Press, 1977), p. 3, estimate an average of $28.95. Richard K. Vedder, "The Slave Exploitation (Expropriation) Rate," *Explorations in Economic History*, 12 (Oct 1975), 453–7, uses $30 per year.

[6]The 30–year estimate of slave life expectancy at birth (actually 29.78 years) comes from Robert William Fogel, "The Life Expectation of U.S. Slaves c. 1830," in Fogel, Ralph A. Galantine, and Richard L. Manning, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Evidence and Methods* (New York: W. W. Norton, 1992), pp. 285–6. This information is buried in a table that is infuriatingly indecipherable to non–experts because the headings are in a notation that is nowhere explained. Those interested in knowing the meaning of $_nQ_x$ (probability at age x of dying before reaching age $x + n$) or e_x (expected number of years remaining to be lived

subjective satisfaction as an equal monetary wage would have under freedom. Free laborers have far more opportunity to exchange money on the market for goods and services tailored to their unique preferences. Making this comparison would be no more valid than pricing all the food, clothing, housing, and medical care received by present–day convicts and claiming it equivalent to the same number of dollars earned outside prison.

A joke once told about an escaped slave from Kentucky who was brought before an Indiana justice of the peace illustrates the difficulty:

Judge: "Were you unhappy there?"

Slave: "Oh no. I had a good life there."

Judge: "Were you mistreated?"

Slave: "No. Old Massa and me was the greatest friends. Fished and hunted together."

Judge: "Did you have good food and housing?"

Slave: "Sure enough. Ham and 'taters. Molasses. My little cabin had roses over the door."

Judge: "I don't understand. Why did you run away?"

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at age *x*) must turn to p. 38 of Ansley J. Coale and Paul Demeny, *Regional Model of Life Tables and Stable Populations* (Princeton, NJ: Princeton University Press, 1966). The estimate itself is an upward revision from Richard H. Steckel's estimate of 21 to 23 years, "A Dreadful Childhood: The Excess Mortality of American Slaves," *Social Science History*, 10 (Winter 1986), 454, n. 3, but because of Steckel's revelations about slave infant mortality, still lower than the original estimate of 36 years appearing in Fogel and Stanley L. Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), pp. 125–6, and derived from Robert Evans, Jr., "The Economics of American Negro Slavery," in National Bureau of Economic Research, *Aspects of Labor Economics: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton, NJ: Princeton University Press, 1962), p. 212. *Time on the Cross*, v. 1, pp. 125–6; v. 2, p. 101, provides the life expectancies for the non–slave populations, U.S. and European.

Slave: "Well your Honor, the situation is still open down there if you'd like to apply for it."[7]

In confronting this problem of interpersonal utility comparisons, economists live up to their reputation. They make an assumption. Pure transfers are treated as if they cancel between gainers and losers. This amounts to translating them into money and assuming that the marginal dollar is of equal value to everyone. Economists make this assumption, even though they know it is false, for two reasons: (1) it immensely simplifies the analysis; and (2) although the assumption may be false for each individual transfer, it may not be badly false for a large economy with lots of transfers. While this second rationale seems to fit the modern world, with coercive redistribution going in various directions and individual subjective gains and losses offsetting each other, it does not work well for the antebellum South, where redistribution was overwhelmingly from poor slaves to wealthier slaveholders. Most of us share the intuition that a dollar taken from Bill Gates and given to a homeless person raises the homeless person's subjective utility far more than it lowers that of Bill Gates, despite the fact that there is no way to prove it. Yet this weakness becomes an advantage in analyzing slavery's efficiency. By making the counter–intuitive assumption that all dollar transfers made slaveholders better off to the exact same degree that slaves were worse off, we bias the case *in favor* of chattel slavery. Then if we discover additional losses, over and above these transfers, we can be extremely confident of our conclusion that the peculiar institution was inefficient.

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[7]Jonathan Hughes, *American Economic History*, 3rd edn., ([New York]: HarperCollins, 1990), p. 234.

Some economists might object to my claim that welfare economics treats all pure transfers as a wash. John R. Hicks and Nicholas Kaldor are supposed to have overcome the problem of comparing utility between individuals with what is known as a "potential Pareto improvement." But I have been convinced by David Friedman's arguments that the Hicks–Kaldor criterion hides its implicit comparisons behind a confusing veil of words about how the gainers "could have compensated" the losers but did not. If no compensation is actually accepted or rejected, we have no way to know if it sufficed unless we make an interpersonal utility comparison. Without the assumption that the subjective value of the marginal dollar is equal for everyone, welfare economics can say almost nothing—positive or negative—about transfers, whether through private theft, government intervention, or outright enslavement.[8] Those critics of Fogel and Engerman, such as Paul David and Peter Temin, who argue that welfare economics is completely irrelevant to slavery, do not seem to realize that their objection would also rule out a welfare analysis of any government policies, including tariffs or tax–financed public goods.[9]

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[8]Friedman, *Price Theory*, pp. 434–54, and "Does Altruism Produce Efficient Outcomes? Marshall versus Kaldor," *Journal of Legal Studies*, 17 (Jan 1988), 1–13. For the original presentations of the Hicks–Kaldor criterion see Nicholas Kaldor, "Welfare Propositions of Economics and Interpersonal Comparisons of Utility," *Economic Journal*, 49 (Sep 1939), 549–52; John R. Hicks, "The Foundations of Welfare Economics," *Economic Journal*, 49 (Dec 1939), 696–712; and T[ibor]. de Scitovsky, "A Note on Welfare Propositions in Economics," *Review of Economic Studies*, 9 (Nov 1941), 77–88.

[9]Paul A. David and Peter Temin, "Slavery: The Progressive Institution?", in Paul A. David, *et. al.*, *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery* (New York: Oxford University Press, 1976), pp. 223–30.

As it turns out, the secondary effects of forced transfers almost always impose additional losses on the economy. The pirates who plagued colonial waters until the middle of the eighteenth century enriched themselves with captured cargoes. The cargoes were pure transfers and are assumed to cancel out. But when pirates also sunk merchant ships, the total losses of merchants exceeded the gains of pirates. Economists call this excess burden "deadweight loss," and it is the reason theft is inefficient. People are worse off on average.[10]

Most deadweight loss results not from damage done during a theft but from ways people alter their behavior in response. They reallocate resources either to seek transfers or avoid them. This drain on wealth is so widespread that economists have given it the name "rent seeking." Rent seeking occurs whenever people employ scarce labor, land, or capital—with alternative uses—to affect coercive transfers, as through political lobbying, military conquest, or simple piracy, just to name three instances.[11] The major net losses from piracy were not

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[10]Although the term deadweight loss is a rather recent convention among economists, an interesting coincidence is that Cassius Clay, the Kentucky abolitionist, prefigured its use with respect to the peculiar institution in 1845. "The twelve hundred millions of capital invested in slaves," he wrote, "is a *dead loss* to the South [emphasis mine]. . . ." Horace Greeley, ed., *The Writings of Cassius Marcellus Clay: Including Speeches and Addresses* (New York: Harper & Brothers, 1848), p. 224.

[11]Perhaps the first, and still one of the best, analyses of rent seeking is Gordon Tullock, "The Welfare Costs of Tariffs, Monopolies, and Theft," *Western Economic Journal*, 5 (Jun 1967), 224–32. A textbook presentation is in David B. Johnson, *Pubic Choice: An Introduction to the New Political Economy* (Mountain View, CA: Mayfield, 1991), pp. 327–40. Two valuable collections on the subject are James M. Buchanan, Robert D. Tollison, and Tullock, eds., *Toward a Theory of the Rent–Seeking Society* (College Station: Texas A & M University Press, 1980), and Charles K. Rowley, Tollison, and Tullock, eds., *The Political Economy of Rent–Seeking* (Boston: Kluwer, 1988). The appearance of the word "rent" in this term is unfortunate. Why economic usage strays in this case so far from the conventional meaning is too convoluted to go into here but relates to the term "capitalized rent" used with respect to slave breeding in Chapter 2. Suffice to say, "rent" may have in economics more different technical definitions than any other word.

ships sunk but all the ships and sailors that pirates devoted to stealing that otherwise could have furthered mutually beneficial pursuits, as well as all the expenditures on protecting cargoes that merchants could have made on other things, and all the unrealized gains from the ocean trade that piracy scared away. Adding up all these sources of deadweight loss helps us appreciate why eliminating piracy on the high seas was a major benefit to the international economy. Notice that despite these losses, piracy was still profitable for the perpetrators. Theft, after all, is the quintessential case where individual incentives do not lead to socially optimal outcomes. Slavery, we will discover, worked out similarly.

II

The peculiar institution had three sources of deadweight loss. And each of the three had differing impacts on the three distinct groups within the South's population: slaves, slaveholders, and free nonslaveholders. The first source of deadweight loss we may refer to as *classical inefficiency*. It resulted from how chattel slavery changed the behavior of blacks. Because human bondage replaced the enticement of a wage with the threat of violence, the quantity and quality of work was not what free laborers would have provided. The classical economists were quite correct that in *some* respects slavery did operate like a tax on work, such as an income tax at high marginal rates, reducing the South's aggregate output, although perhaps not to the degree these economists believed.

Slaveholders, of course, mixed positive and negative incentives. Not all the bondsman's labor was coercively extracted. Slaves were fed and received other payments, as already noted. Slaveholders could decide whether to try to

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induce additional work with rewards (pecuniary and non–pecuniary) or with punishments. Unless the owner or his hired overseer were sadists who received subjective utility from inflicting pain, they would usually only resort to force when it was less expensive. Because coercion itself uses up labor, as well as other scarce resources, not to mention possible loss of output from injuring or killing the slave, it was not always cheaper than paying an implicit wage.[12]

Slaveowners found positive incentives less costly for jobs requiring greater skill, initiative, or self–discipline. In towns and cities, where such jobs were more common, the practice of hiring out slaves and giving them a fixed sum or percentage became well established. Slaves who were skilled carpenters, masons, or other artisans often could "hire their own time," that is, choose their own employers and thereby engage in entrepreneurship. Many lived separately from their masters. Charles Ball, a runaway who escaped to the North, reported on a slave in Savannah, Georgia, who was even able to hire other slaves to help with jobs and who paid his master $250 a year in monthly installments. "A city slave," observed former slave Frederick Douglass, "is almost a free citizen" because he "enjoys privileges altogether unknown to the whip–driven slave on the plantation."[13]

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[12]Attempts to model the optimal trade–off (from the slaveholder's perspective) between rewards and punishments include Giorgio Cannarella and John Tomaske, "The Optimal Utilization of Slaves," *Journal of Political Economy*, 35 (Sep 1975), 621–29, and Charles Kahn, "An Agency Theory Approach to Slave Punishments and Rewards," in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2 (New York: W. W. Norton, 1992).

[13]Charles Ball, *Slavery in the United States: A Narrative of the Life and Adventures of Charles Ball, a Black Man* (Lewistown, PA: John W. Shugert, 1836), p. 391; Frederick Douglass, *My*

These practices were so remunerative for slaveowners that they persisted despite countless municipal and state ordinances outlawing them. This made bound labor adaptable to diverse occupations. Lumber camps, sawmills, coal mines, rock quarries, textile mills, riverboats, cattle ranches, and railroads throughout the South employed black slaves, who also comprised half the work force at the Tredegar Iron Works in Richmond, Virginia, while over two thousand were iron workers in the Cumberland River region of Tennessee. One exceptional case involved a Mississippi slave named Simon Gray, who during the 1850s became captain of a Natchez flat boat, managing and paying a crew that included white men. He also conducted other business for his company, requiring that he carry firearms, travel freely, and handle large sums of money. Out of his salary Gray could afford to rent a house for himself and his family. His owners even permitted him a vacation in Arkansas for his health.[14]

To the extent that bondsmen worked for explicit or implicit wages, the system operated like free labor. "Whenever a slave is made a mechanic," complained James Henry Hammond of South Carolina, "he is more than half freed."[15] What distinguished slavery was the master's option to wield brutality and terror. Theoretically he could add sufficient force to induce a slave to do any task that could be induced with a wage. Flogging was the most common method.

Bondage and My Freedom (1855, reprint edn.; Chicago: Johnson, 1970), p. 115. For a general discussion, see Clement Eaton, "Slave–Hiring in the Upper South: A Step toward Freedom," *Mississippi Valley Historical Review*, 46 (Mar 1960), 663–78.

[14]John Hebron Moore, "Simon Gray, Riverman: A Slave Who Was Almost Free," *Mississippi Valley Historical Review*, 49 (Dec 1962), 472–84.

[15]James Henry Hammond, address before the South Carolina Institute, 1850, *De Bow's Review*, old ser., 8 (June 1850), 518.

Imagine, however, the security costs of employing a typical slave as a boat captain, and you can understand why a case like Simon Gray was rare. Bondsmen usually were not useful for jobs requiring extensive travel, wide dispersion, use of firearms, or high degrees of trustworthiness, especially when lots of cash was involved. "The point here is not that one incentive system," either rewards or punishments, "was categorically more efficient than the other," notes Thomas Sowell. Which of the two was cheaper "differed according to the work and to the cost of knowledge to those who held the decision–making power."[16]

The existing technology of force consequently divided the Old South's labor market into roughly three sectors. Free labor dominated one sector where hiring workers was invariably less costly than coercing slaves. But these tended to be jobs requiring initiative, discretion, and diligence, where close monitoring was prohibitively expensive—in other words, jobs that commanded higher wages because the output was more valuable. In the second sector, slave labor and free labor went head-to-head in competition. This included skilled craftsmen, jobs where slaves hired their own time, and southern factories, which usually could be run with either slave or free workers.[17] The labor market's third sector was plantation agriculture, where motivating workers with punishments was cheaper

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[16]Thomas Sowell, *Markets and Minorities* (New York: Basic Books, 1981), p. 94.

[17]Varied perspectives on slaves in southern cities and factories can be found in Richard C. Wade, *Slavery in the Cities: The South 1820–1860* (London: Oxford, 1964); Robert S. Starobin, *Industrial Slavery in the Old South* (New York: Oxford University Press, 1970); Claudia Dale Goldin, *Urban Slavery in the American South, 1820–1860: A Quantitative History* (Chicago: University of Chicago Press, 1976); Ronald L. Lewis, *Coal, Iron and Slaves: Industrial Slavery in Maryland and Virginia, 1715–1865* (Westport, CT: Greenwood Press, 1979); and Fred Batemen and Thomas Weiss, *A Deplorable Scarcity: The Failure of Industrialization in the Slave Economy* (Chapel Hill: University of North Carolina Press, 1981).

than with rewards. Plantations were rarely run with wage labor in any society, either before or after emancipation.

Many blacks, if free, might have performed well–paid jobs in the first sector of the South's labor market. They therefore could have produced either of two possible streams of future output—one less valuable while slaves and one more valuable while free. Wherever such a discrepancy arose, it became a mutually profitable deal for the slave to buy his freedom from his owner. Despite the refusal of state laws to recognize the bondsman's right to hold property, his higher asset value once free should have enabled him to borrow the purchase price, under all sorts of risk and repayment plans, either from his master or a third party.

Varied institutional arrangements have facilitated slave self–purchase historically. Throughout ancient Greece and Rome, manumission and ransom prices were frequently higher than market prices for slaves, and slave self–purchase became so common that it may have been one factor in the institution's decline during the Pax Romana, after supplies of fresh captives dried up. The right of slaves to buy their freedom in some Latin American countries became formalized in a practice known as *coartación*. Manumission by slaveowners practically eliminated slavery in Mexico long before formal abolition in 1829. Even in Brazil and Cuba, where sugar plantations made bound labor far more commercially vital, the number of free blacks was approaching the number of slaves by the nineteenth century.[18] Manumission through self–purchase was not

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[18]On manumission in other slave societies, consult Hubert H. S. Aimes, "Coartación: A Spanish Institution for the Advancement of Slaves into Freedmen," *Yale Review*, 17 (Feb 1909), 412–31;

unknown in the United States, being most common in the upper South. But as the distinguished historian of slavery, David Brion Davis, has noted, "the most important distinction between the legal status of slaves in British and Latin America" was the extensive barriers to manumission in British–settled areas. Although other slave societies sometimes regulated or restricted manumission, often with the alleged humanitarian purpose of preventing slaveowners from abandoning their aged or crippled chattel, "only in the Southern United States did legislators try to bar every route to emancipation and deprive masters of their traditional right to free individual slaves."[19]

These barriers severely inhibited self–purchase, except when temporarily relaxed during the late Revolutionary era. Even in the South the American Revolution's ideological assault upon any form of human bondage had made

A. M. Duff, *Freedmen in the Early Roman Empire* (Oxford: Clarendon Press, 1928); David Brion Davis, *The Problem of Slavery in Western Culture* (Ithaca, NY: Cornell University Press, 1966), pp. 54–8; David W. Cohen and Jack P. Greene, eds., *Neither Slave Nor Free: The Freedman of African Descent in the Slave Societies of the New World* (Baltimore: Johns Hopkins University Press, 1972); Orlando Patterson, *Slavery and Social Death: A Comparative Study* (Cambridge, MA: Harvard University Press, 1982), pp. 209–96; and Herbert S. Klein, *African Slavery in Latin America and the Caribbean* (New York: Oxford University Press, 1986), p. 224.

[19]David Brion Davis, "Slavery," in C. Vann Woodward, ed., *The Comparative Approach to American History* (New York: Basic Books, 1968), p. 128. An excellent collection that offers comparative details on New World manumission policies is Cohen and Greene, eds., *Neither Slave Nor Free*. The metropolitan government imposed in the French colonies a tax upon manumission after 1775, as did the governor of the Dutch colony of Curaçao in the 1750s and the legislature in British Barbados beginning in 1739. It was by focusing on the relative frequency of manumission in Latin America (among other features) that Frank Tannenbaum, in his slim volume, *Slave and Citizen: The Negro in the Americas* (New York: Alfred A. Knopf, 1946) kicked off the debate on where New World slavery was the most horrible. Further contributions to this debate are Herbert S. Klein, *Slavery in the Americas: A Comparative Study of Virginia and Cuba* (Chicago: University of Chicago Press, 1967); Eugene D. Genovese, "The Treatment of Slaves in Different Countries: Problems in the Applications of the Comparative Method," in Laura Foner and Genovese, eds., *Slavery in the New World: A Comparative Reader* (Englewood Cliffs, NJ: Prentice–Hall, 1969); and Carl N. Degler, *Neither Black Nor White: Slavery and Race Relations in Brazil and the United States* (New York: Macmillan, 1971). See also Richard S. Dunn, *Sugar and Slaves: The Rise of the Planter Class in the English West Indies, 1624–1713* (Chapel Hill: University of North Carolina Press, 1972).

some inroads. Southern societies encouraging masters to free their human chattel
flourished; and several states relaxed legal obstacles to such voluntary
manumissions. Such actions spawned the first substantial communities of free
blacks, concentrated in the upper South. Delaware saw the process furthest;
three–quarters of the state's blacks were out of bondage by 1810. Between 1790
and 1800, the population of free blacks in the Atlantic slave states nearly doubled.
If that increase had continued at the same rate until 1860, almost the entire slave
population of the country would have become free.[20] Such was nearly the case in
Delaware, where 20 percent of the population was black, and nine out of every ten
blacks were free. Maryland, with a quarter of its population black, was already
half free by 1860.[21]

     With the subsequent hardening of proslavery sentiment, however,
Southerners extended many of the system's totalitarian controls to free blacks.
Nearly every slave state reintroduced or tightened restrictions upon whites
privately emancipating their chattels. Seven simply outlawed manumission unless
the legislature granted specific permission, and courts increasingly overturned
wills that freed slaves upon the owner's death. By the 1850s the number of

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[20][U.S.] Bureau of the Census, Department of Commerce, *Negro Population: 1790–1915*
(Washington: Government Printing Office, 1918), p. 55. What little is known about manumission
through self–purchase in the United States can be found in Sumner Eliot Matison, "Manumission
by Purchase," *Journal of Negro History*, 33 (Apr 1948), 146–67; in sections of Luther P. Jackson,
"Manumission in Certain Virginia Cities," *Journal of Negro History*, 15 (Jul 1930), 278–314; and
in Herbert Aptheker, "Buying Freedom," in Aptheker, *To Be Free: Studies in American Negro
History*, 2nd edn. (New York: International, 1968).

[21]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970*
(Washington: Government Printing Office, 1975), pt. 1, series A195–209; Bureau of the Census,
Negro Population, p. 57.

southern free blacks was rising more slowly than the number of slaves. Census

takers noted a total 1,467 manumissions in 1850, and 3,018 in 1860, in both years

less than a tenth of a percent of the slave population.[22] Even when laws against

manumission could be evaded, the widespread legal disabilities faced by free

blacks reduced their potential incomes and made self–purchase less viable.

Virginia required any slave, upon receiving freedom, to leave the state within

twelve months, and four other southern states adopted similar requirements at one

time or another. Throughout the South, free blacks had their movements watched

and regulated, their right to testify against whites denied, and the types of jobs

they could do limited. Sometimes they were literally forced to work, being

re–enslaved in all but name.[23]

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[22][U.S. Census Office, 1860 Census], *Statistics of the United States (Including Mortality, Property, etc.) in 1860: Compiled from the Original Returns and Being the Final Exhibit of the Eighth Census* (Washington: Government Printing Office, 1866), p. 337; Bureau of the Census, *Negro Population*, p. 55. Thomas D. Morris, *Southern Slavery and the Law, 1619–1860* (Chapel Hill: University of North Carolina Press, 1996), the most extensive discussion of the court cases that arose under southern slave codes, treats barriers to manumission on pp. 371–423. Paul Finkelman also discusses the subject in *The Law of Freedom and Bondage: A Casebook* (New York: Oceana, 1986), pp. 97–189. But the most extensive coverage remains to be found in Ira Berlin, *Slaves Without Masters: The Free Negro in the Antebellum South* (New York: Random House, 1974), pp. 138–60, which also looks at ways that individual slaveholders evaded these barriers. Berlin speculates on p. 148 that "[i]llegally freed blacks may composed more than half the free Negro population in some parts of the Lower South." Other works on slave codes prior to Morris's—such as Andrew Fede, *People Without Rights: An Interpretation of the Law of Slavery in the U.S. South* (New York: Garland, 1992); Alan Watson, *Slave Law in the Americas* (Athens: University of Georgia Press, 1989); and Mark V. Tushnet, *The American Law of Slavery, 1810–1860: Considerations of Humanity and Interest* (Princeton, NJ: Princeton University Press, 1981)—have fascinating interpretations but are narrowly focused on special issues.

[23]Regarding treatment of southern free blacks, see Berlin, *Slaves Without Masters* and Eugene D. Genovese, "The Slave States of North America," in Cohen and Greene, eds., *Neither Slave Nor Free*; while Leon F. Litwack, *North of Slavery: The Negro in the Free States 1790–1860* (Chicago: University of Chicago Press, 1961), does the same for northern free blacks.

Because of all these legal obstructions, slavery necessarily misallocated labor to less productive uses. Slaves were not only worse off, but so were the slaveholders who could have profited from self–purchase deals. This does not justify slaves having to buy their own liberty but merely acknowledges that the market provided a route to eliminate this inefficiency and simultaneously erode the peculiar institution. Why planters should erect such barriers when it was in their individual self–interest to permit self–purchase is a question to which we will return. As for nonslaveholders, many would have benefited from the increase in the South's aggregate output resulting from unlimited manumission. A few might have seen their incomes fall from this new source of competition, but these "pecuniary externalities" would have been more than offset by the concomitant income gains elsewhere in the southern economy.

Strictly speaking, this classical efficiency results from comparing southern slavery to a Pareto–optimal labor market—not to the actual labor market that might have existed had the South abolished the peculiar institution. Free labor could have been less efficient in the real world because of potential market failures that slavery overcame, and indeed, Engerman has skirted toward this argument in speculations about slavery's possible reduction of certain transaction costs.[24] Free laborers find it difficult to borrow for investments in their own health, skills, education, or relocation, even though these can all raise future

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[24]Stanley L. Engerman, "Some Considerations Relating to Property Rights in Man," *Journal of Economic History*, 33 (Mar 1973), 50; Engerman, "Some Economic Factors in Southern Backwardness in the Nineteenth Century," in John F. Kain and John R. Meyer, eds., *Essays in Regional Economics* (Cambridge: Harvard University Press, 1971), pp. 299–300, 305. See also Fogel and Engerman, *Time on the Cross*, v. 1, pp. 261–3, and Goldin, *Urban Slavery in the American South, 1820–1860*, pp. 46–7, 129–32.

earnings. Creditors often have little recourse upon a worker's default, without some form of debt bondage or contract labor. This potential market failure provides the efficiency justification for today's student loans and government schools. A slaveholder, in contrast, owns outright the human capital of his workers, presumably giving him both the incentive to make such investments and the collateral against which to borrow the money, if necessary.[25]

Empirically, however, the peculiar institution's effect on these transaction costs, if any, is hard to isolate. The health and life expectancy of blacks shows some deterioration in the first quarter–century after emancipation, and black rates of internal migration fell as well.[26] But these changes could as easily be the result of former slaves finally being free to exercise their subjective preferences, in which case allocative efficiency improved, rather than declined. Most planters, for instance, imposed a tighter regime of temperance than their human chattel would have chosen for themselves. Although doing so may have raised slaves' output, it reduced their welfare, judged by their own tastes, and therefore qualifies as *in*efficient. This is more than just a semantic quibble over the term efficiency, as will become clearer in the next section.

The one unambiguous indicator—black literacy and education—shows that slavery significantly inhibited the development of human capital. Laws

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[25]The pioneering work on the concept of human capital is Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, With Special Reference to Education*, 3rd edn. (Chicago: University of Chicago Press, 1993).

[26]On pre– and post–Civil War rates of black migration, see Philip E. Graves, Robert L. Sexton, and Richard K. Vedder, "Slavery, Amenities, and Factor Price Equalization: A Note on Migration and Freedom," *Explorations in Economic History*, 20 (Apr 1983), 156–62.

throughout the South forbade teaching slaves to read and write, and even though these strictures made the region poorer, planters do not appear to have exerted much effort to get around them. Engerman argues that "these [literacy] skills were not necessary for increased plantation output" and therefore investing in them had a "low financial return."[27] But this begs the fundamental question: how many blacks could have performed higher paying jobs *outside* the plantation if such educational investments had been made? For as Sowell has emphasized, the "pure unmodified slavery" of the plantation "reduced the productivity of people with given capabilities, *as well as* reducing the capabilities that could be developed from people with given potentialities [emphasis mine]."[28] That such potential gains were not trivial is attested to by the fact that most free blacks, both North and South, were literate prior to the Civil War.[29]

Instead of trying to find market failures that slavery surmounted, a more plausible line of argument could pick on government failures that would make the labor market without slavery less efficient. Occupational restrictions on free blacks were widely imposed after emancipation, and if slaves could be admitted into jobs from which blacks otherwise were excluded, then to that extent the

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[27]Engerman, "Some Considerations Relating to Property Rights in Man," 54, and Engerman, "Some Economic Factors in Southern Backwardness in the Nineteenth Century," pp. 299–300.

[28]Thomas Sowell, *Race and Culture: A World View* (New York: BasicBooks, 1994), p. 197.

[29]According to the 1860 Census, from a total U.S. free–black population of 488,070, 91,736 adults could not read and write. [U.S. Census Office, 1860 Census], *Statistics of the United States (including Mortality, Property, etc.) in 1860*, p. 508. See also [U.S. Census Office, 1850 Census], *Statistical View of the United States . . . Being a Compendium of the Seventh Census* (Washington: A. O. P. Nicholson, 1854), p. 153; C[arter] G. Woodson, *The Education of the Negro Prior to 1861: A History of the Education of the Colored People of the United States from the Beginning of Slavery to the Civil War*, 2nd edn. (Washington: Associated, 1919); and E. Franklin Frazier, *The Negro in the United States*, rev. edn. (New York: Macmillan, 1957), pp. 72–4.

peculiar institution did reduce inefficiencies. All these difficulties make the deadweight loss from classical inefficiency in the antebellum South difficult to quantify.

<center>III</center>

The second source of the peculiar institution's deadweight loss also arose from the altered behavior of blacks. I am tempted to call it "Fogel and Engerman" inefficiency. Not only is it implicit within the pages of *Time on the Cross*, but in fact much of what the authors tout as slavery's efficiency becomes, upon closer examination of its welfare implications, the exact opposite. *Time on the Cross* even provides a dollar estimate of this particular deadweight loss, although not labeled as such. Perhaps a more neutral expression would be *output inefficiency*. Whereas classical inefficiency resulted from slavery operating like a tax on work, output inefficiency resulted from slavery operating like a tax on leisure, as modeled in slightly different ways by Yoram Barzel and Stefano Fenoaltea.[30] In this respect, it was analogous to the head and hut taxes that Western colonial powers frequently imposed on native populations in order to induce them to provide workers for European–owned enterprises. This ability to artificially increase the quantity of labor was what made slavery appealing where labor was relatively scarce as compared with land, such as in the New World.

Nearly three–quarters of America's slaves toiled on plantations or farms in 1860, and the proportion was climbing. Most of these bondsmen were in the

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[30]Yoram Barzel, "An Economic Analysis of Slavery," *Journal of Law and Economics*, 20 (Apr 1977), 87–110; Stefano Fenoaltea, "Slavery and Supervision in Comparative Perspective: A Model," *Journal of Economic History*, 44 (Sep 1984), 635–68.

South's cotton belt; others grew sugar in lower Louisiana, rice along the coast of South Carolina and Georgia, or tobacco in Virginia. Large plantations were the sector of the Old South's labor market where free whites could not compete effectively against black slaves. The reason? The threat of the lash compelled field hands to work either longer or harder than anyone would for market wages. During peak seasons, black drivers herded gangs of men and women into agricultural assembly–lines that labored from sunup to sundown. Edmund Ruffin, a militant apologist for the peculiar institution, saw this as the source of its superior productivity:

> Slave labor, in each individual case, and for each small measure of time, is more slow and inefficient than the labor of a free man. . . . But the slave labor is continuous. . . . Free laborers, if to be hired for the like duties, would require at least double the amount of wages to perform one–third more labor in each day.[31]

Planters moreover put women into the fields, even when pregnant or soon after childbirth, and children beginning around ages 8 to 12. Slaves too old for field work took over the care of infants along with other light household duties. Because of the plantation's "full employment" regime, two thirds of slaves participated in the labor force, compared with only one–third for free populations, North and South.[32]

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[31]Edmund Ruffin, *The Political Economy of Slavery; or, The Institution Considered in Regard to Its Influence on Public Wealth and General Welfare* ([Washington]: Lemuel Towers, 1853), p. 4.

[32]Stanley Lebergott, "Labor Force and Employment, 1800–1960," in National Bureau of Economic Research, *Output, Employment and Productivity in the United States After 1800*, Studies in Income and Wealth Series, v. 30 (New York: Columbia University Press, 1966), pp. 117–204; Fogel and Engerman, *Time on the Cross*, v. 1, p. 207; Robert William Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989), p.

These slaves were worked well beyond the point where the value of their output could cover a wage that would attract free laborers. One implication of *Time on the Cross* is that a single field hand's labor on large plantations was worth $52 per year *more* (in 1850 dollars) than the cotton he produced.[33] If free and receiving the full value of their output, these blacks would have done less work and consumed more leisure, or perhaps done work that produced less but was more fun or interesting or had other non–pecuniary rewards. In these instances, where planters compelled laborers to give up leisure or on-the-job rewards, slavery did raise the economy's physical output. This too, however, represented a misallocation of labor, a misallocation that made aggregate production too high rather than too low, because the extra output came at the expense of total well–being. Each additional hour of labor was producing less than its value to the laborer as leisure. In other words, for every dollar that slavery drove up southern output it drove up deadweight loss as well.

We can visualize output inefficiency by modifying Figure 2.1, our simple demand and supply diagram for slave labor, into Figure 3.1. The downward sloping demand curve (**D**) is unchanged except that now it represents agricultural demand exclusively. Figure 3.1, however, has two supply curves. $\mathbf{S}_{slave}$ is still our inelastic supply of slave labor. But $\mathbf{S}_{free}$ is a new curve representing the quantity of

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52; Gerald Friedman, Richard L. Manning, and Fogel, "Labor Force Participation and Life Cycles in Slave Occupations," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, pp. 140–50.

[33]Fogel and Engerman, *Time on the Cross*, v. 2, pp. 160–1. As we will discuss below, Fogel and Engerman estimate that an annual wage of $128 would have been necessary to get free workers to provide gang labor on large plantations. Their imputed annual wage for free whites on family farms was $53, while the annual increase in labor's marginal value product resulting from economies of scale on large plantations was $23. Thus $128 – ($53 + $23) = $52.

labor that blacks would have preferred to provide at each wage if they had been free. Where it intersects the demand curve it has the standard positive (upward) slope that is observed in nearly all labor markets. Economists have speculated that if wages rise high enough, the supply curve could bend backwards, as workers become so well paid for each hour of work that they take more leisure. In Barzel's model, the supply of labor is also bends backward at wages close to subsistence, and we have indicated this possibility with a dashed line at the lower end of $\mathbf{S}_{\text{free}}$.

In order to abstract from variations among individual slaves, all magnitudes measured along the vertical axis are for prime field hands, whereas the horizontal axis measures the quantity of labor adjusted for quality differences. Thus, an hour of a female slave's field work counts less than a male's. $\mathbf{S}_{\text{free}}$ intersects the demand curve at L_2, to the left of L_1, where $\mathbf{S}_{\text{slave}}$ intersects $\mathbf{D}$. Slaves if free would have preferred to work less, but coercion induced them to provide a greater quantity of labor. This shift to the right from L_2 to L_1 was accomplished not by increasing the total number of slaves, but either by compelling the existing labor force to work longer, by compelling them to work harder, by driving their labor participation rate up, or by any combination of those three. Notice that the intersection of $\mathbf{S}_{\text{free}}$ with $\mathbf{D}$ is at a higher wage, W_2, than W_1, because a decline in the quantity of labor would have raised its marginal revenue product.

On a free labor market, to get L_1 labor, however, planters would have had to offer not W_2, but an even higher wage, W_3, where $\mathbf{S}_{\text{free}}$ meets L_1. But since this wage would have exceeded labor's marginal value in the production of plantation crops, planters could hardly have afforded to pay it. Yet that is what the labor was worth to the workers. In other words, slavery was allocating labor worth W_3 to

produce crops worth only a wage of W_1. *Time on the Cross* arrived at a value of
$52 for this difference from estimates that W_3 would have had to have been $128
per year, whereas W_1 was $76. But the opportunity cost for slaves was greater
still, since they were not receiving W_1 but instead only M, subsistence, which
Fogel and Engerman put at $61 for prime field hands on large plantations. Thus,
by Fogel and Engerman's own calculations, the last $15 expropriated by
slaveholders from every such hand imposed on the slave an additional loss of $52
that was a gain to no one. (For ease of depiction, the diagram treats total slave
subsistence, M x L, as varying proportionately with the quantity of labor provided,
L. Although not entirely realistic under all conditions, this assumption accords
with *Time on the Cross*'s assertion that part of the increased output on large
plantations was passed along to the slaves on those plantations.)

     Time on the Cross put the net burden borne by all plantation slaves from
being overworked at $84 million in 1850 alone. Part of this loss was a transfer to
slaveowners—$10 million per year according to Fogel and Engerman's estimates.
As we observed in the last chapter, this $10 million flow was simply capitalized
into slave prices. Another part went not to slaveholders but to consumers of cotton
goods and of other slave products. The increased labor made output go up, and
therefore the prices of these products fell. The authors estimated this annual
redistribution to be $14 million. That left a net loss of $60 million in 1850 that
benefited no one—that was pure deadweight loss *worldwide*. Moreover, since
nearly all of the Old South's increased production was enjoyed outside the

South—much of it abroad—the net loss for the South alone includes the $14 million in external gains and therefore goes up to $74 million per year.[34]

Fogel and Engerman's way of summarizing these results is presented in Table 3.1, reprinted from the first volume of *Time on the Cross*. The extra cotton output in the slave states was worth $30 million, but the cost of producing it was $90 million. The ultimate gainers from this increased cotton production were consumers. Higher output drove down cotton prices and caused a redistribution from black slaves to American, English, and continental wearers of clothing. But since there were many more of them, these benefits were thoroughly dispersed. Fogel and Engerman's conclusion is that every dollar gained by a typical user of cotton cloth imposed a welfare loss of "at least $400" on some individual slave.[35] Although the planter only earned a competitive return on his chattels, American blacks were being forcibly deprived of leisure so that millions of workers elsewhere could live slightly better.

This artificial stimulation of cotton output, therefore, was definitely not allocative efficient, nor even productive efficient by any sensible use of the term. What Fogel and Engerman heralded as slavery's higher productivity resulted, by their own subsequent admission, from a coercive increase in the labor input. No economist would claim that a factory had achieved greater efficiency if it

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[34]Fogel and Engerman, *Time on the Cross*, v. 1, p. 245.

[35]*Ibid.*, p. 246. Fogel and Engerman nowhere state how they calculated this amount, but it seems to suppose at least 67 consumers of cotton for every plantation slave (or every field–hand equivalent?). Their text claims that "[f]or every slave working in the cotton fields, there were hundreds of consumers of cotton." But that would require a higher loss of at least $600/slave for every $1/consumer gained.

increased weekly production by forcing a fixed number of laborers to work ten hours per day instead of eight, or equivalently, by forcing them to work much harder during the same number of hours. Yet this is what *Time on the Cross* essentially claimed about plantation slave gangs. Similarly, other coercive measures that may have expanded cotton output, such as depriving slaves of alcohol, closely regulating their diets in other ways, or forcing them to move to richer soils, would not qualify as efficient.

I should hasten to add that we cannot put too much credence in Fogel and Engerman's actual numbers. Although no one has yet quarreled with their estimated gains from increased cotton production, these have received no attention. The total value of $30 million is probably as reliable as any we will get. But its division between producers and consumers is a complicated computation. It depends among other things upon the relationship between price and quantity purchased, or what economists call the *elasticity* of the international demand for cotton, because although producers benefited from selling more, they were also hurt by selling at a lower price. Most elasticity estimates for antebellum cotton demand are in the neighborhood of one, which would make planter gains and losses nearly equal (ignoring concomitant changes in slave subsistence).[36] Fogel

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[36]For instance, Robert William Fogel and Stanley L. Engerman, "The Economics of Slavery," in Fogel and Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971), p. 318; Gavin Wright, "Prosperity, Progress, and American Slavery," in David, *et. al.*, *Reckoning with Slavery*, p. 333; Wright, *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: W. W. Norton, 1978), p. 92; John R. Hanson II, "World Demand for Cotton during the Nineteenth Century: Wright's Estimates Re–examined," *Journal of Economic History*, 39 (Dec 1979), 1015–21; Wright, "World Demand for Cotton during the Nineteenth Century: Reply," *ibid.*, 1023–4. Wright believed that his estimates of the price elasticity of cotton demand in an earlier article, "An Econometric Study of Cotton Production and Trade," *Review of Economics and Statistics*, 53 (May 1971), 111–20, were too low (in absolute value). On the other hand, Gerald Friedman and Donghyu Yang, "The Debate

and Engerman, however, assumed that the demand for cotton was perfectly inelastic to compute $30 million, and their estimate of planter gains seems instead to be just another expression of the capitalized rents from raising slaves. If that is so, then it distorts consumer gains as well, since that is derived as a residual.[37]

Criticism, however, has zeroed in on Fogel and Engerman's estimate of losses to slaves, so I will confine revisions to those figures. Correcting *some* of their mistakes, ironically, would push deadweight loss down. The value of $76 for W_1 comes from adding, to the imputed labor income for free white farmers in the South of only $53, a 44 percent gain for the greater labor productivity of large slave plantations. (Other than the change in output from forcing slaves to work harder, Figure 3.1 does not depict any such potential economies of scale. To do so would require a second demand curve for the marginal revenue product of labor on small farms, to the left of **D.** Although complicating the analysis, it would not alter the conclusions about deadweight loss. Moreover, *Time on the Cross*'s claim about economies of scale is controversial, as we will see in Chapter 5.) *Time on the Cross* went so far as to make the astonishing assertion that, because of these

on the Elasticity of the Cotton Supply," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, p. 268, derive demand elasticities that are lower still and therefore closer to Fogel and Engerman's assumption for computing output gains. Most recently, David G. Surdam persuasively contends in "King Cotton: Monarch or Pretender? The State of the Market for Raw Cotton on the Eve of the American Civil War," *Economic History Review*, 51 (Fall 1998), 113–32, that cotton demand could not have had a constant elasticity. Rather, its elasticity increased as price rose. We will return to the elasticity of cotton demand in subsequent chapters.

[37]Fogel and Engerman, *Time on the Cross*, v. 2, pp. 161–2. Fogel and Engerman got $30 million as total gains through their estimated production function for cotton. They derived approximately $10 million (precisely $9.6 million) for planter gains by multiplying their $30 average birth–price for slaves times the total population of 3.2 million slaves, and then crediting a 10 percent annual return on that amount to slaveholders. After subtracting the $10 million from the $30 million, and deducting an additional $6 million for increased subsistence payments to slaves on large plantations, Fogel and Engerman were left with a residual of $14 million as consumer gains.

economies of scale in cotton production, "the average pecuniary income actually received by a prime field hand [i.e., our *M*] was roughly 15 percent greater than the income he would have received for his labor as a free agricultural worker."[38]

Paul David and Peter Temin, however, noted that the $53 free wage was certainly wrong, because it failed to adjust for the lower labor–force participation rate of whites.[39] Nor is an annual $76 marginal revenue product *per prime field hand* (W_1) consistent with any estimates of annual labor income *per slave* we presented at the end of Chapter 2 in Table 2.1, which range from $62 to $86. Furthermore, as the second volume of *Time on the Cross* states explicitly, such a low marginal revenue product implies that the amount slaveholder's were extracting (*T*) was *a mere* $15 a year—not on average from all slaves, nor from the average adult field hand, but from male hands in their prime.[40] This is wildly out of line with all of Fogel and Engerman's other results, as well as the results of others. Their mistake was in fact even more serious than David and Temin realized. Fogel and Engerman had tried to derive labor *income* of a free male farmer using a ratio that related the *consumption* of male slaves to the average slave, a variable not remotely relevant.[41]

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[38]*Ibid.*, v. 1, p. 239.

[39]David and Temin, "Slavery: The Progressive Institution?", pp. 184–6.

[40]Fogel and Engerman, *Time on the Cross*, v. 2, p. 161.

[41]The computation of the $53 is explained in *ibid.*, pp. 158–60. According to the Parker–Gallman sample, the annual output of the average free farm in the antebellum South was $418.13. Fogel and Engerman used their agricultural production function to determine that 58 percent of that, or $242.52, was labor income, the remainder being attributable to land and capital. The average family on such a farm was 6.48 persons, yielding $37.43 per person. Starting with their $42.99 estimate of average slave consumption (*M*) on large plantations (see Table 2.1), and making a

By working backwards from the data in Table 2.1, we can roughly reckon the annual income generated by a prime field hand on a large plantation at as much as $220 rather than $76. This upward revision is more in line with the hire rates recorded for slaves.[42] If Fogel and Engerman are right about economies of scale, then the imputed labor income of free southern farmers would come out to $153 per year, well *above* even the most generous estimates of payments to slaves.[43] This number is also more consistent with what we know about the wages paid farm laborers in the South, which averaged $160 annually, according to the

minor 1.00218 adjustment for the differences in age–sex structure between slave and free families, the authors of *Time on the Cross* concluded that the income of a slave family of equal size was $42.99 x 6.48 x 1.00218 = $279.16, or 15 percent higher than the labor income of a Southern free family. Since the ratio of adult male consumption to average consumption for slaves was 1.41, the consumption of a prime field hand must have been $60.62. Fogel and Engerman then erroneously reduced that estimate of slave *consumption* by 15 percent to come up with an average white male *income* of $52.71. Another minor problem is that nearly all these dollar amounts are from the Parker–Gallman sample at 1860 prices, yet Fogel and Engerman apply them to 1850 without any apparent price–level adjustment, although it would only be in the neighborhood of 5 percent.

[42]In Table 2.1, both the Fogel and Engerman estimate for large plantations and the Vedder estimate are $86 annual income per slave. We start with the higher values because we want to determine the marginal value product of prime hands on the most productive plantations. Fogel and Engerman, "The Economics of Slavery," p. 327, and *Time on the Cross*, v. 2, p. 78, estimate that the average slave generated 39 percent of adult male income. Dividing $86 therefore by .39 yields approximately $220 per adult male slave. The 39 percent is derived from the empirical study of Raymond C. Battalio and John Kagel, "The Structure of Antebellum Southern Agriculture: South Carolina, A Case Study," *Agricultural History*, 44 (Jan 1970), 25–37. Fogel and Engerman rejected that higher, 50 percent ratio of average slave to adult male income that had been calculated by James D. Foust and Dale E. Swan, "Productivity and Profitability of Antebellum Slave Labor: A Micro Approach," *ibid.*, 39–62. Yet others have since come up with ratios closer to Foust and Swan: Gerald Gunderson explicitly derives 50 percent in "Southern Ante–bellum Income Reconsidered," *Explorations in Economic History*, 10 (Winter 1973), 154–6, and Ransom and Sutch implicitly 58 percent in *One Kind of Freedom*, p. 233, Table C.1 (multiplying line 5 times line 7 and adding over 1860). Using the higher conversion factors would lower the income generated by adult males. Both the Battalio–Kagel and Foust–Swan articles are reprinted in William N. Parker, ed., *The Structure of the Cotton Economy of the Antebellum South* (Washington: Agricultural History Society, 1970).

[43]*Time on the Cross* attributes a 44 percent increase in labor efficiency for large plantations over southern free farms, so the imputed labor income of a white male farmer should be $220/1.44 = $153. Be warned also, as David and Temin point out, that this omits all *non–labor* income earned by free farmers.

research of Stanley Lebergott.[44] Indeed, a brief note, written by Mark M. Hopkins and N. Scott Cardell for one of the supplemental volumes of *Without Consent or Contract* refigures the average labor income of a free male farmer at \$105.44.[45] Although 50 percent lower than my own estimate, mainly because Hopkins and Cardell allege that economies of scale had even greater impact on relative labor income, this yearly income is still nowhere close to slave consumption. Yet the outlandish claim that slaves on large plantations were receiving more for their labor than white farmers is still repeated by Fogel in the main volume of the same work.[46]

Equally questionable is the figure of \$128 for W_3, the wage that would have induced blacks to provide gang labor. Fogel and Engerman derived this from

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[44]Stanley Lebergott, *Manpower in Economic Growth: The American Record since 1860* (New York: McGraw–Hill, 1964), p. 539, provides average monthly wages of farm laborers by state. Donghyu Yang, "Explanations for the Decline in Southern Per Capita Income, 1860–1880," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, p. 275, computed an average of \$13.40 per month for the South overall by weighting each state's wages by population shares. Multiplying by 12 yields \$160.80.

[45]Mark M. Hopkins and N. Scott Cardell, "A Correction to the Computation in *Time on the Cross* of the Value of Freedom at Low–Income Levels," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, pp. 379–82. Hopkins and Cardell do not seem completely candid about the originality of this result. They retrospectively re–label Fogel and Engerman's original estimate of \$53 as white male *consumption*, despite the fact that the authors of *Time on the Cross* never referred to it that way. Even as a measure of consumption the number has no justification. To (re)calculate white male *income*, Hopkins and Cardell divide the \$242.52 average labor income for a non–slave farm in the Old South by 2.3, "the average number of prime–aged male equivalents on such a farm." They credit this derivation to *Time on the Cross*, although none of their citations bear them out, and I cannot locate it anywhere else in the two volumes.

[46]Fogel, *Without Consent or Contract*, pp. 79, 435 (n. 50). The claim also makes it appearance in Robert W. Fogel and Stanley L. Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," *American Economic Review*, 67 (Jun 1977), 293; reprinted in Fogel and Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992).

an unpublished dissertation by Charles Edwin Seagrave.[47] Seagrave compared on

four Louisiana plantations the postwar wages of gang workers with the earnings

of sharecroppers, and with the prewar income of slaves. On this basis the authors

of *Time on the Cross* concluded that W_3 must have been at least 2.4 times the

labor income received by free farmers ($53). But if we apply the same ratio to my

corrected labor income for free farmers ($153), then W_3 jumps from $128 to $367.

This adjustment will ultimately push estimated deadweight loss way up. The labor

coerced from slaves now is worth $147 more than the cotton produced. The total

burden borne by slaves now rises from $84 million to $200 million per year. And

the annual loss for the southern economy nearly triples from $74 million to $190

million.[48]

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[47]Edwin Seagrave, "The Southern Negro Agricultural Worker: 1850–1870" (Ph.D. diss., Stanford University, 1971).

[48]$147 is the difference between the revised W_3 ($367) and the revised marginal value product of slaves on large plantations ($220). The total deadweight loss worldwide ($176 million) is the latter difference times 1.2 million field hands. 1.2 million is the number Fogel and Engerman used for deriving their $84 million figure for net annual losses to slaves, and although they neglect to tell us, I infer that it is based on the common assumption of one full hand for every two slaves. See for instance, Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington: Carnegie Institution, 1933), v. 1, p. 544; or Kenneth M. Stampp, *The Peculiar Institution: Slavery in the Ante–Bellum South* (New York: Alfred A. Knopf, 1956), p. 57. There were 3.2 million slaves in 1850, of which 75 percent worked on plantations, so (3.2 x .75)/2 = 1.2. None of the revisions alter Fogel and Engerman's estimates of $14 million annual gain to cotton consumers and $10 million annual gain to slaveholders, so those amounts are added to total deadweight loss to arrive at the annual deadweight loss for the southern economy ($190 million) and the net burden on slaves ($200 million). (Mathematically inclined readers will have already noticed the following: because retained slave income, with the revisions, is no longer higher than labor income on free farms, the calculations have had to be appropriately modified. Fogel and Engerman started with the $75 difference between their W_3 [$128] and their estimate of labor income for free farmers [$53]. They multiplied that number times 1.2 million to get $90 million in *non–pecuniary* losses to slaves. From this they had to subtract $6 million for the higher subsistence received by slaves on large plantations to arrive at the $84 million mentioned above. But the labor income of free farmers becomes irrelevant to the calculations once it exceeds *M,* slave subsistence. And since I was calculating the *additional* burden resulting from output

Unfortunately, this revised figure is almost certainly too high and only gives us an upper bound on the burden of output inefficiency. As David, Temin, and Gavin Wright have all emphasized, the ratio of 2.4 derived from the Seagrave dissertation is itself suspect (despite being not far outside the range suggested in the Ruffin quotation above, where he stated that free laborers would require twice the wage to provide one–third more output). Seagrave made his comparison only for Louisiana during the years 1865 to 1867, when bad weather caused crop failures that unexpectedly lowered *ex post* sharecropper income, but not wages, which had been set *ex ante*, on the basis of expected output.[49] So let us try out a lower number of $252 for W_3, derived by applying Seagrave's ratio to Hopkins and Cardell's free–farm labor income ($105), and combine it with our upward revision for W_1. That still leaves lower–bound estimates with cotton worth $32 less than the labor of the prime field hand that produces it, an annual burden on slaves of $62 million, and annual deadweight loss to the southern economy of $52 million.[50] Table 3.2 summarizes the alternative estimates.

inefficiency rather than total slave exploitation, I thought it more appropriate to work backwards from deadweight loss, in the opposite direction of Fogel and Engerman. If Fogel and Engerman had applied my procedure to their own numbers, their final results would have been almost identical.)

[49]David and Temin, "Slavery: The Progressive Institution?", pp. 224–5; Gavin Wright, "Prosperity, Progress, and American Slavery," pp. 323–4. Another more technical upward bias may result from the fact that W_3 is the subjective marginal cost of only the last hours that field hands worked, not the subjective cost of every hour they worked. In other words, my measure of the slave burden may improperly include some producer surplus. If so, Fogel and Engerman did likewise. But so long as we are merely guessing at W_3, the simplest way to adjust for this bias is to lower our guess.

[50]$32 is the difference between $252 and the revised marginal value product of slaves of large plantations ($220). Total deadweight loss ($38 million) is the latter difference times 1.2 million equivalent hands. Adding $14 million annual gains to cotton consumers gives the South's annual losses ($52 million); adding $10 million annual gain to slaveholders gives the burden on slaves ($62 million).

The range between $52 million and $190 million per year for the deadweight loss from output efficiency in the antebellum South is large, but even the smaller amount exceeds 5 percent of the region's total income in 1850, certainly not minor.[51] We can provisionally accept these numbers, not because they are flawless, but because few plausible alternatives are available; moreover, as we have seen, even significant changes would not undermine the theoretical conclusion—completely at odds with Fogel and Engerman—that slavery entailed significant deadweight loss. This necessarily follows so long as the wage required to entice free workers to engage in gang labor exceeded the marginal revenue product of the cotton that gang labor was producing. The fact that free labor never competed with slave labor in the plantation sector stands as powerful *prima facia* evidence of output inefficiency.

At first glance, the burden of output efficiency, unlike classical inefficiency, seems to have fallen solely upon the enslaved population. Treating people like livestock may have harmed the victims more than it benefited their owners in the Old South, but at least the owners and free nonslaveholders appear no worse off. To discover whether this impression is accurate, let us for a moment ignore black welfare and also ignore any deadweight loss from classical inefficiency. This is tantamount to asking if the peculiar institution was a Pareto

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[51]Total U.S. GNP in 1850 was $2.32 billion (1850 dollars), according to Robert E. Gallman, "Gross National Product in the United States, 1834–1909," in National Bureau of Economic Research, *Output, Employment and Productivity in the United States After 1800*, Studies in Income and Wealth Series, v. 30 (New York: Columbia University Press, 1966). The work of Richard A. Easterlin, "Regional Income Trends, 1840–1950," in Seymour E. Harris, ed., *American Economic History* (New York: McGraw–Hill, 1961), suggests that the South's share of that was somewhere between 26 and 29 percent. Chapter 4 will review in greater detail the estimates of the South's regional income.

optimal way for slaveholders to extract utility from their chattel? The answer is probably no, because our discussion of manumission through self–purchase over–simplified the pay–offs. Gains were not confined to cases where the slave could earn a higher income once free. Robert Moes has pointed out that self–purchase should have been *theoretically* viable even for field hands. "[T]he relevant comparison is not that between the productivity of a free man and a slave but between the productivity of a slave with and without the hope of freedom."[52] The wage required to induce free laborers to do plantation work is not necessarily the lowest wage that slaves would have accepted if offered a chance to buy their freedom. Field hands might have been willing to do the same work for less than their current implicit wages, if their liberty was thrown into the bargain. So even slaveholders could have captured some of the gains from eliminating slavery's output inefficiency.

This does raise an important puzzle. For the greater number of slaves working on plantations, self–purchase appears to have been infeasible even if had it been legal. It certainly was far less common than among skilled slaves, even though the legal restrictions were identical. The authors of *Time on the Cross*, among others, have suggested one possible resolution. The high wage demanded by free laborers indicates that these were the very jobs where negative incentives dominated positive incentives. We could therefore suppose that the implicit wage (including what field hands are allowed to consume in leisure) was already close

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[52]John E. Moes, "The Economics of Slavery in the Ante Bellum South: Another Comment," *Journal of Political Economy*, 68 (April 1960), 187. Also consult Moes, "Comment," *Aspects of Labor Economics*, pp. 247–56;

enough to bare survival to leave the slave very little to offer in exchange for freedom.[53]

Observe how this explanation conflicts with Fogel and Engerman's assertion of high implicit wages of prime field hands on large plantations. Barzel hints at a likelier explanation.[54] The debt contract of a field hand who purchased his own liberty would cost more to enforce than would outright enslavement, in light of the fact that the former slave has almost as much incentive and much more opportunity to evade paying the debt than to escape slavery. In short, the same transaction costs that made debt default historically a major source of slaves also inhibited manumission through self–purchase. This applied most strongly to the sector of the labor market where coercion costs were low and slave workers dominated—not just within the antebellum South, but within slave economies going back to the ancient world. The southern states, by adding legal road blocks on top of these transaction costs, effectively closed off self purchase for plantation slaves.

To summarize, so long as we concentrate on the behavior of blacks, the peculiar institution pushed the South's aggregate production of goods and services in two conflicting directions. Insofar as slavery forced laborers to work at less valued jobs, it created classical inefficiency and lowered output. Insofar as slavery

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[53]Fogel and Engerman, *Time on the Cross*, v. 2, pp. 160–1. Also Engerman, "Some Considerations Relating to Property Rights in Man," 62–3. To make this argument work, Fogel and Engerman further assume that freed slaves would be unwilling or unable to continue working as field hands, even though they could earn higher incomes than as independent farmers. Hopkins and Cardell, "A Correction to the Computation in *Time on the Cross* of the Value of Freedom at Low–Income Levels," revise the calculation but with the same dubious assumption.

[54]Yoram Barzel, "An Economic Analysis of Slavery," 91.

forced laborers to work more hours or more intensely, it created output inefficiency and raised output. Since increased output predominated in southern agriculture, it undoubtedly swamped the reduction in output, which must have been most common in the South's urban areas. The adverse impact on aggregate well–being was unambiguous, however. For calculating slavery's deadweight loss, the two tendencies, rather than counteracting each other, add together. And while bondsmen bore much of this burden, the restrictions on manumission ensured that white Southerners, slaveholders and non–slaveholders alike, were hurt as well.

<center>IV</center>

Everybody knows that bondage hurt the slave. But deadweight loss is more than harm to one person or a group. It implies that, even after an implausibly generous allowance for offsetting benefits to the masters, the loss to the slaves was so great that it exceeded those gains, making everyone on average poorer in the pre–Civil War South. Furthermore, we have yet to consider a third source of deadweight loss, caused by the way the peculiar institution changed the behavior of slaveowners. From the owner's perspective, he was like an employer of free labor, with a few extra options. Masters had two basic ways to motivate their chattel: all the positive incentives available to employers plus negative incentives. We have seen that this confronted slaveholders with a classical trade–off, and if they wished to maximize profits, they chose whichever type of incentive was cheaper for them at the margin.

So far the analysis is completely consistent with Fogel and Engerman. But now lets turn the master's trade–off around, and view it from the perspective of

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the black slave. When planters used (implicit or explicit) wages, the cost to them was a gain for the slaves. Every dollar an employer paid out was a dollar that an employee received. In contrast, when owners used violence, the cost was not a receipt to the slaves. It therefore constituted more deadweight loss, converting all the slave system's enforcement into a social burden for the region. Without slavery, these resources would have been used in other endeavors. We may refer to this as *enforcement inefficiency*.

Enforcement inefficiency is depicted in Figure 3.2, another modification of the simple demand–supply diagram of Figure 2.1. We will dispense with the supply curve for free labor that we introduced in Figure 3.1 (although if the reader wishes to keep it, no conclusions would change). $\mathbf{D}$ and $\mathbf{S}_{slave}$ still intersect at L_1 and W_1. W_1 still represents labor's marginal revenue product. But now W_1 combines three rather than two components: T, the annual transfer to slaveholders; M, slave maintenance; and C, the cost of coercing each slave. The cost to planters per slave is $M + C$, but each slave receives in the form of implicit wages only M. The annual deadweight loss arising from enforcement inefficiency is therefore the shaded area $C \times L_1$.

Cliometricians have been remarkably consistent in their valuations of C. Alfred Conrad and John Meyer put annual supervisory costs at $5.00 to $15.00 *per prime hand*, and Edward Saraydar, one of their sharpest critics, agreed that the average "of $10 a hand does not seem unreasonable." Roger Ransom and Richard Sutch translated that into supervisory costs of $5 *per slave*.[55] Multiplying $5 per

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[55]Alfred H. Conrad and John R. Meyer, *The Economics of Slavery and Other Studies in Econometric History* (Chicago: Aldine, 1964), p. 57, table 5; Edward Saraydar, "A Note on the

slave times the 3.2 million slaves in 1850, we get an upper estimate of annual deadweight loss from enforcement inefficiency of $16 million for that year. If we assume that $5 applied only to the 75 percent of slaves on plantations, and that the costs of coercing city slaves was zero, we arrive at a lower estimate of $12 million. These estimates, while falling below those for output inefficiency, still exceed one percent of the slave South's total annual income.

Moreover, they seriously understate the deadweight loss from the peculiar institution's enforcement. Not only did slaveowners make expenditures to monitor slaves, but also punishments imposed a nonpecuniary cost on slaves. When a bondsman was whipped, his suffering does not appear in the master's accounts although it is an added loss in the overall social accounts. Its monetary value is what slaveholders would have had to pay to get their workers voluntarily to endure such pain and the threat thereof—presumably a very high sum indeed. We however will ignore this additional burden, which was borne exclusively by the black population, just as we have unrealistically treated each dollar the master spent to feed and clothe his chattels as providing them with a dollar's worth of satisfaction. Even with this additional assumption, which is biased in favor of slavery, we will discover shortly why our estimates of enforcement inefficiency are probably still too low.

Free workers, of course, require supervision too. So the relevant amount should include not all of slavery's management costs but only the difference

Profitability of Ante Bellum Slavery," *Southern Economic Journal*, 30 (Apr 1964), 328; Ransom and Sutch, *One Kind of Freedom*, p. 210. The figure is based on the South's ratio of one overseer for approximately every 100 slaves, and an annual salary per overseer of between $400 and $600. Visiting coercion and the threat thereof on slaves may not have constituted the overseer's sole duties, but then again the overseer's salary was not the sole cost of coercion.

between managing free workers and slaves. Because plantation gangs almost uniformly failed to entice wage labor, however, that comparison is unavailable. We have already observed that plantation agriculture was the sector of the labor market where employing negative incentives was cheapest. Slavery's higher security costs in the labor market's other two sectors is what made free labor more competitive there. It is even theoretically conceivable that the cost of coercing a gang of plantation slaves would have been less than the cost of managing an equivalent gang of highly paid free laborers. That this possibility was unlikely is attested to by the fact that most large southern plantations had both black drivers and white overseers, as well as resident owners. Although their functions could overlap or duplicate, roughly the owner and drivers provided the supervision that even wage workers would have required, whereas the overseers provided the coercive substitute for a wage. On the smaller slave farms, the owner usually did without an overseer and performed that task himself.[56]

Enforcement costs raised further any potential gains from manumission through self–purchase. With the savings from eliminating these expenses, a slave buying his freedom no longer had either to be able to earn a higher income or to be willing to give up some future consumption once free. Indeed, for there to be monetary gains to both parties, the former slave's future income must merely have exceeded the value of his output as a slave *minus* the cost of coercing him ($W_1 - C$). On the other hand, any transaction costs associated with the slave's

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[56]Studies of the general management of plantation slaves include William Kauffmann Scarborough, *The Overseer: Plantation Management in the Old South* (Baton Rouge: Louisiana State University Press, 1966), and William L. Van Deburg, *The Slave Drivers: Black Agricultural Labor Supervisors in the Antebellum South* (Westport, CT: Greenwood Press, 1979).

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financing self–purchase would push required post–manumission income in the opposite direction. What factor predominated cannot be known *a priori*, but the infrequency of self–purchase among field hands creates a solid presumption that policing debts was more expensive than policing slavery.

Thus, the most that can be said about this additional net loss from enforcement inefficiency was that it would have fallen exclusively on the slaves—so long as each individual planter had to cover his own security costs. His expected returns from the coerced labor would then be greater than these costs. Even this ceased to be true, however, if slaveholders could impose part of the costs on non–slaveholding whites (or even other slaveholders). Given that wealth, prestige, and power were becoming increasingly concentrated in the hands of large planters, it is no surprise that such was in fact the case. Slaveholders were a minority, even within the southern states. Only one–fourth of white households owned slaves, and about half of those owned fewer than five.[57] This elite was very successful at getting governments at all levels, from local through national, to subsidize slavery's enforcement.

The chief way that state and local governments externalized these costs was slave patrols. Established in every slave state, the patrols enforced black codes by apprehending runaways, monitoring the rigid pass requirements for blacks traversing the countryside, breaking up large gatherings and assemblies of

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[57]Stampp, *The Peculiar Institution*, pp. 29–30; Lee Soltow, "Economic Inequality in the United States in the Period from 1790 to 1860," *Journal of Economic History*, 31 (Dec 1971), 822–39. That fraction had been declining since 1830, although it varied from state to state and in 1860 approached one–third for those slave states that would comprise the Confederacy, as emphasized by Otto H. Olsen, "Historians and the Extent of Slave Ownership in the Southern United States," *Civil War History*, 18 (Jan 1972), 101–16.

blacks, visiting slave quarters randomly, inflicting impromptu punishments, and as occasion arose, suppressing insurrections. The patrollers generally made their rounds at night and were more active and regular in areas with many slaves. Loosely connected with the local militia, patrol duty was compulsory for most able–bodied white males. Exemption usually required paying a fine or hiring a substitute. The slave patrols thereby affixed a tax-in-kind that shifted enforcement costs to small slaveholders and poor whites who owned no slaves.[58]

Proslavery theorist George Fitzhugh was acutely conscious of the slave patrol's crucial function in an era and region where professional police were unknown. "The poor . . . constitute our militia and our police. They protect men in possession of property, as in other countries; and do much more, they secure men in possession of a kind of property which *they could not hold a day* but for the supervision and protection of the poor [emphasis added]."[59] This aspect did not escape the bondsmen themselves, who had a healthy and well–warranted fear of the patrollers. They "are poor white men" said one fugitive slave who had fled to

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[58]Until the recent publication of Sally E. Hadden, *Slave Patrols: Law and Violence in Virginia and the Carolinas* (Cambridge, MA: Harvard University Press, 2001), the South's compulsory patrols remained one of the gaping holes in the slavery literature. Besides brief sections in such general works as Stampp, *The Peculiar Institution*, pp. 213–5; and Leslie Howard Owens, *This Species of Property: Slave Life and Culture in the Old South* (New York: Oxford University Press, 1976), pp. 70–5, the few good discussions were in John Anthony Scott, "Segregation: A Fundamental Aspect of Southern Race Relations, 1800–1860," *Journal of the Early Republic*, 4 (Winter 1984), 421–42; Peter H. Wood, *Black Majority: Negroes in Colonial South Carolina From 1670 Through the Stono Rebellion* (New York: Alfred A. Knopf, 1974); John Hope Franklin, *The Militant South, 1800–1861* (Cambridge, MA: Harvard University Press, 1956), pp. 72–6; Charles Sackett Sydnor, *Slavery in Mississippi* (New York: D. Appleton–Century, 1933), pp. 77–83; and Howell M. Henry, *The Police Control of the Slave in South Carolina* (Emory, VA: H. M. Henry, 1914), pp. 28–42.

[59]George Fitzhugh, *Sociology for the South: Or the Failure of Free Society* (Richmond: A. Morris, 1854), pp. 144–5.

Canada, "who live by plundering and stealing, getting rewards for runaways."[60] Such rewards came partly from slaveholders themselves but just as often were paid out of the state treasury.

Consider the consequences of imposing these security costs on whites owning no slaves. Coercion was now less expensive for each slaveholder, so that the trade–off between positive and negative incentives was shifted toward coercion. Not only did this worsen the bondsmen's lot, but expenditures on enforcement were now driven to the point where they exceeded any gains to planters. Deadweight loss went up still further with free whites bearing some of the burden. Since patrol duty fell more heavily on the poor, the subsidy to slaveholders was matched by a tax on free labor. Manumission through self–purchase became still less attractive to masters because of the subsidy. As slavery's enforcement costs were thus socialized, owners experienced capital gains, although the higher slave prices left the rate of return unaltered.

An accurate measure of enforcement inefficiency, therefore, would have to add to the estimates above the annual opportunity cost of the slave patrol system throughout the South, including not just fines and taxes collected but also the market value of all uncompensated labor required from white patrollers. One town in Mississippi is reported to have imposed a fine as high as $20 for refusal to obey the constable's summons to serve a twelve–hour patrol shift.[61] South Carolina's statutes of 1819 and 1839 imposed a fine of $2.00 plus 10 percent of

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[60]Frances Henderson, as quoted in Benjamin Drew, *The Refugee: Or the Narratives of Fugitive Slaves in Canada* (Boston: John P. Jewett, 1856), pp. 156–7.

[61]Sydnor, *Slavery in Mississippi*, p. 81.

the delinquent's last tax levy on all white males over eighteen (and under forty–five, if nonslaveholders) for failure to perform patrol duty.[62] Each South Carolina militia company was required at least four times a year to hold a petty muster, where the commanding officer would pick from the rolls those who were to perform the duty.[63] Table 3.3 lists the patrol fines during the 1850s for all slave states. South Carolina comes out on the low end of the spectrum; most states charged at least $5 per infraction, and some went as high as $20. Even in the two border states with voluntary patrols, Kentucky and Missouri, the hourly patrol salary (between 10 and 25 cents) was funded through taxation. Unless such taxes fell exclusively on slaveholders, which was extremely unlikely in states where slaves constituted only 10 to 20 percent of the population, they imposed a burden on nonslaveholders.

How often each individual might be subjected to patrol duty or fines is unclear, but yearly is a conservative guess. Using $5.00 as a seat-of-the-pants proxy for the annual opportunity cost of patrol duty per person throughout the South, and multiplying it by the number of eligible non–slaveholders in the South in 1850, yields an estimate of nearly $4.5 million per year as the annual subsidy to slaveholders through the patrol system.[64] With interest rates around 10 percent,

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[62]Thomas Cooper and D. J. McCord, eds., *Statutes at Large of South Carolina* (Columbia: A. S. Johnston, 1836–41), v. 8 (1819) 538–41, v. 11 (1839) 83–9; Henry, *The Police Control of the Slave in South Carolina*, pp. 36–7.

[63]Cooper and McCord, *Statutes at Large of South Carolina*, v. 11 (1839) 84, (1841) 182.

[64]According to U.S. Bureau of the Census, *Historical Statistics of the United States*, pt. 1, series A172–194, A195–209, the white population of the slave states (including Missouri, which is not in the census definition of the South, but excluding Delaware) was 6.151 million in 1850. I divided

that subsidy—growing as the South's population increased by more than 25 percent over the next decade—contributed at least $45 million to the total present value of slave property.[65]

The desire to reduce slavery's enforcement costs also explains the seeming anomaly of laws hindering slave self–purchase. A large and prosperous free black community would make it easier and more appealing for slaves to escape or resist. As the free black populations grew in Delaware and Maryland after the Revolution, for instance, the threat of runaways sped up the process of voluntary manumission. The gradual emancipation laws of many northern states did not free any slaves alive when enacted, and those born afterwards were held in bondage until their mid–twenties, allowing owners to recoup the costs of raising them. Nonetheless, these laws inexorably drove up the number of free Negroes in the North, and slaves could abscond more easily. Slaveowners found that manumission through self–purchase or a promise of early liberty were better ways to salvage returns than trying to hold slaves for as long as the law allowed.[66] Prohibitions against manumission, restrictions on free blacks, indeed the promotion of racial prejudice itself, all helped planters coerce their chattels more

by 2 to eliminate females, multiplied by .75 to isolate males in non–slaveholder families, and multiplied again by .4 to confine the count to eligible ages.

[65]*Ibid.* shows the population of the slave states (including Missouri) rising from 9.665 million in 1850 to 12.315 million in 1860. The white population alone recorded a similar rate of increase. To calculate the present value of a perpetual $2 million annual payment, simply divide by the 10 percent rate of interest.

[66]Arthur Zilversmit, *The First Emancipation: The Abolition of Slavery in the North* (Chicago: University of Chicago Press, 1967); Edgar J. McManus, *Black Bondage in the North* (Syracuse, NY: Syracuse University Press, 1973).

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cheaply. The same purpose was behind the laws that forbade teaching slaves to read and write.

The central government also subsidized the peculiar institution in ways we will consider in future chapters. Of course, nearly all societies bear enforcement costs, since all societies have some kind of property system that determines who will decide how scarce resources are allocated. Such costs are part of the deadweight loss generated by criminal behavior, and the higher these rise, the poorer the economy, other things equal. But if we ignore the welfare of criminals, legal regimes can be more or less economically burdensome. Because the State invariably conducts most enforcement, some inefficient subsidies usually occur. Nevertheless, the peculiar institution imposed an additional real resource cost. Enforcing the slave system required labor and capital. Every dollar that Southerners spent this way, beyond what they would have spent otherwise to protect life and property, was added deadweight loss. This reduction in welfare, moreover, translates unambiguously into a fall in output. In real terms, slavery's enforcement inefficiency made the entire southern economy, including both whites and blacks, less prosperous.

Simply by applying the economic concept of political rent–seeking to chattel slavery, our analysis has reached conclusions not fully consonant with either Fogel and Engerman or their critics. Like the classic prisoners' dilemma, the peculiar institution created an incentive structure where slaveholders gained from making society worse off. Even Fogel and Engerman acknowledge that the coercive transfers received by masters were less than the damages inflicted on slaves. But how heavy was the southern economy's combined burden from

classical inefficiency, output inefficiency, and enforcement inefficiency? Omitting entirely the first of these, our crude estimates suggest that annual deadweight loss still varied between $64 million and $210 million in 1850.[67]

A trickier question is how this negative–sum redistribution affected non–slaveholding whites in the South. Although *Time on the Cross* correctly identifies the consumers of cotton clothing as the major beneficiaries of slavery's increased output, there no doubt were others. If worldwide demand for southern cotton was elastic, imported goods were cheaper for all Americans. Whites with scarce talents complementary to slavery, e.g., the overseer who was not nearly as good at anything else, had higher salaries. Owners of land suited to slave agriculture were also wealthier. These gains to non–slaveholders must be offset against the losses they suffered from externalized enforcement costs and misallocated black labor. It is probably impossible to know with numerical precision the net effect of these gains and losses, but the comparative performance of the slave South's economy should give us a good idea. It is that subject to which we shall turn in the next chapter.

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[67]$64 million adds together our lower estimates from output inefficiency ($52 million) and enforcement inefficiency ($12 million). $210 million combines our higher estimates from output inefficiency ($190 million) and enforcement inefficiency ($16 million) with our estimate of the slave patrol's annual subsidy ($4.5 million).

FIGURE 3.1: Markets for Free and Slave Labor
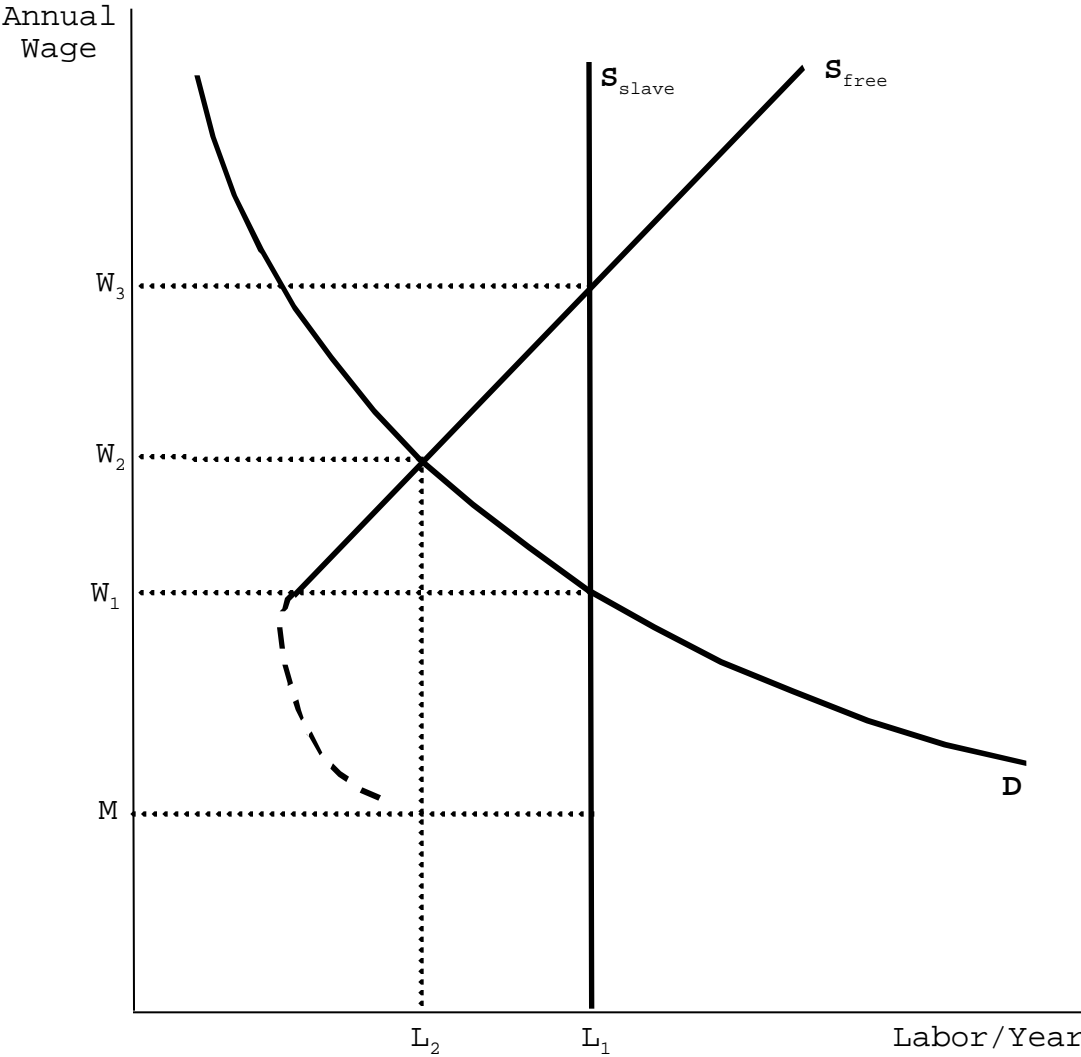
TABLE 3.1
Fogel and Engerman's Estimated Income Gains and
Losses from Increased Cotton Output (for 1850)

	PECUNIARY GAIN	NON–PECUNI-ARY LOSSES	NET GAIN OR LOSS
Slaves	$6 million	$90 million	–$84 million
Consumers of Cotton	14 million	0	14 million
Slaveholders	10 million	0	10 million
TOTAL	$30 million	$90 million	–$60 million

Source: Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), p. 245.

FIGURE 3.2: Costs of Coercion and the Market for Slave Labor
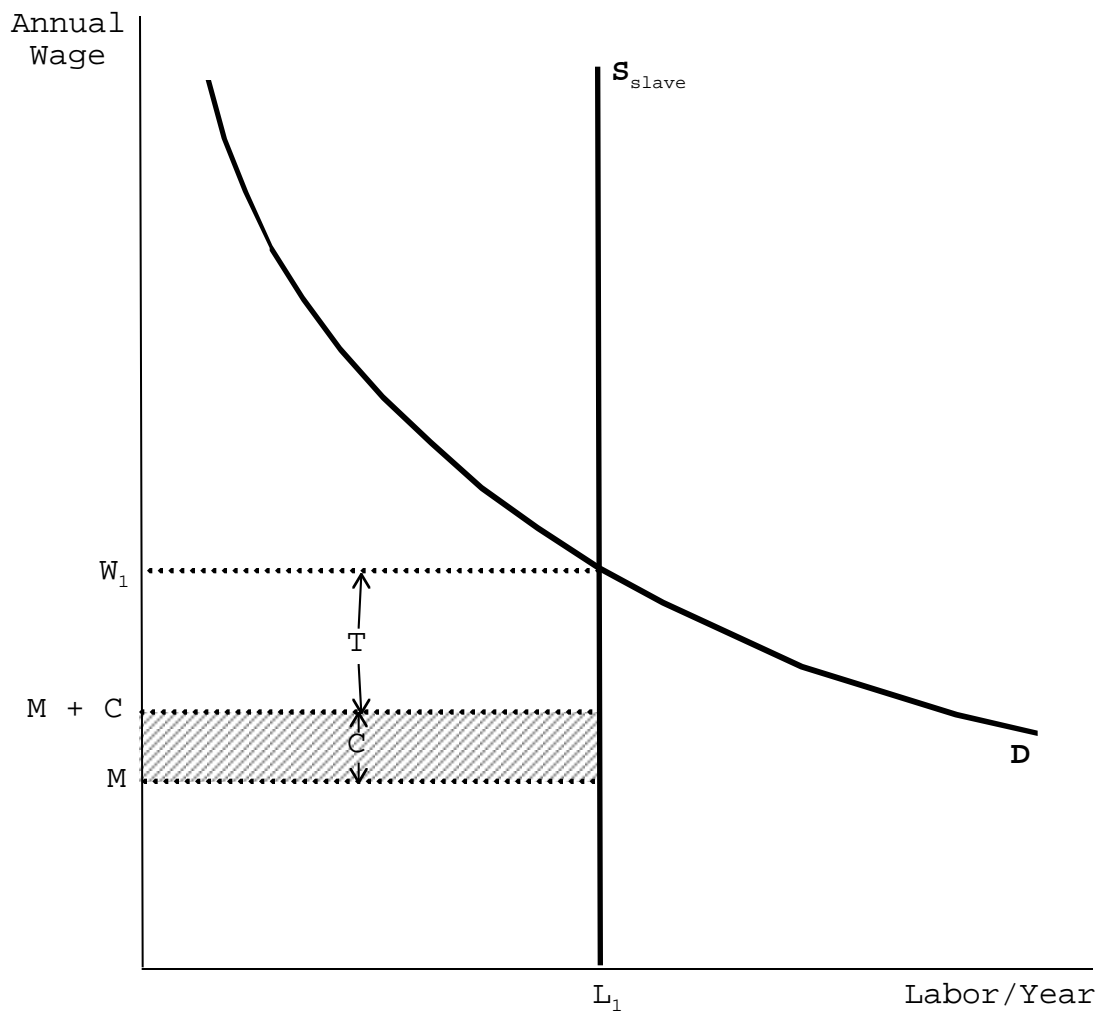
TABLE 3.2
Estimates of Deadweight Loss from Slavery's Output Inefficiency (for 1850)

	FOGEL–ENGERMAN	UPPER–BOUND	LOWER–BOUND
Free Wage for Gang Labor (W_3)	$128	$367	$252
Marginal Revenue Product of Gang Labor (W_1)	76	220	220
Labor Income of Free Farmers	53	153	105
Consumption of Prime Hands (M)	61	61	61
Net Burden on Slaves/Year	$84 million	$200 million	$62 million
Deadweight Loss for the South /Year	74 million	190 million	52 million
Deadweight Loss Worldwide/Year	60 million	176 million	38 million

Sources: Robert William Fogel and Stanley L. Engerman, *Time on the Cross, v.* 1, The Economics of American Negro Slavery (Boston: Little, Brown, 1974), p. 245; v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), pp. 160–2; my estimates (see text).

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TABLE 3.3
Slave Patrol Fines in the Southern States
(c. 1850s)

STATE	FINE
Delaware[a]	no patrol
Maryland[b]	50¢ – $5
Virginia[c]	$5
North Carolina[d]	$20
South Carolina	$2 plus 10%[e]
Georgia	$5
Florida	$2 – $20
Kentucky[f]	voluntary
Tennessee	$5
Alabama	$10
Mississippi	$5
Missouri[g]	voluntary
Arkansas	$10 – $25
Louisiana[h]	$20
Texas	$5 – $10

[a]Delaware had no compulsory militia as of 1831.

[b]Maryland state law established slave patrols in only select counties: Calvert, Charles, Frederick, Prince George's, Saint Mary's, and Worcester. A salary is only mentioned for the Worcester county patrol.

[c]Virginia also provided for a patrol salary of 75¢ per every 12 hours.

[d]North Carolina also provided for patrol salary set by the county courts.

[e]South Carolina's fine was $2 plus 10% of last general property tax assessment.

(continued)

TABLE 3.3
(continued)

[f]Kentucky provided for a professional patrol serving 12–month terms and receiving a salary of $1 per every 10 hours.

[g]Missouri provided a salary of 25¢ per hour.

[h]Although Louisiana's slave patrol system was under the decentralized control of the local police juries, every justice of the peace was authorized to require the services of any individual for patrolling duties.

Sources: *Revised Statues of the State of Delaware: To the Year of Our Lord One Thousand Eight Hundred and Fifty–Two, Inclusive . . .* (Dover: Samuel Kimmey, 1852), *passim*; Otho Scott and Hiram M'Cullough, eds., *The Maryland Code: Public General Laws* (Baltimore: John Murphy, 1860), v. 2, pp. 356–8, 484–5, 585–6, 729–30, 786–7, 951; Clement Dorsey, ed., *The General Public Statutory Law and Public Local Law of the State of Maryland, from the Year 1692 to 1839, Inclusive . . .* (Baltimore: John D. Toy, 1840), v. 2, pp. 1371–2; George W. Munford, ed., *The Code of Virginia*, 2nd ed., *Including Legislation to the Year 1860* (Richmond: Ritchie, Dunnavant, 1860), pp. 491–2; Bartholomey F. Moore and Asa Biggs, eds., *Revised Code of North Carolina, Enacted by the General Assembly at the Session of 1854 . . .* (Boston: Little, Brown, 1855), pp. 458–9; Thomas Cooper and D. J. McCord, ed., *Statutes at Large of South Carolina* (Columbia: A. S. Johnston, 1836–1841), v. 8, pp. 538–41, v. 11, pp. 83–9, Howell Cobb, ed., *A Compilation of the General and Public Statutes of the State of Georgia . . .* (New York: Edward O. Jenkins, 1859), pp. 588–94; William A. Hotchkiss, ed., *A Codification of the Statute Law of Georgia . . .* (Savannah: John M. Cooper, 1845), pp. 815–9; Leslie A. Thompson, ed., *A Manual or Digest of the Statue Law of the State of Florida* (Boston: Charles C. Little and James Brown, 1847), pp. 173–6; Richard H. Stanton, ed., *The Revised Statutes of Kentucky . . .* (Cincinnati: Robert Clarke, 1860), v. 2, pp. 196–8; C. A. Wickliffe, S. Turner, and S.S. Nicholas, eds., *The Revised Statutes of Kentucky* (Frankort: A. G. Hodges, 1852), pp. 520–3; Preston S. Loughborough, ed., *A Digest of the Statute Laws of Kentucky, of a Public and Permanent Nature, Passed Since 1834 . . .* (Frankfort: Albert G. Hodges, 1842), pp. 467–70; Return Jonathan Meigs, William Frierson Cooper, *et. al.*, eds., *The Code of Tennessee: Enacted by the General Assembly of 1857–8* (Nashville: E. G. Eastman, 1858), pp. 502–3; R. I. Caruthers and A. O. P. Nicholson, eds., *Compilation of the Statutes of Tennessee of a General and Permanent Nature . . .* (Nashville: James Smith, 1836), pp. 518–9; John J. Ormond, Arthurg P. Bagby, and George Goldthwaite, eds., *The Code of Alabama* (Montgomery: Brittan and DeWolf, 1852), pp. 234–6; C. C. Clay, ed., *A Digest of the Laws of the State of Alabama . . .* (Tuskaloosa: Marmaduke J. Slade, 1843), pp. 392–5; *The Revised Code of the Statute Laws of the State of Mississippi* (Jackson: E. Barksdale, 1857), p. 420; A. Hutchinson, ed., *Code of Mississippi, . . . from 1798 to 1848* (Jackson: Price and Fall, 1848), pp. 527–30; Charles H. Hardin, ed., *The Revised Statutes of the State of Missouri* (Jefferson: James Lusk, 1856), v. 2, pp. 1126–7; Evans Casselberry, ed., *The Revised Statutes of the State of Missouri . . .* (St. Louis: Chambers & Knapp, 1845), pp. 403–4; Josiah Gould, ed., *A Digest of the Statutes of Arkansas* (Little Rock: Johnson & Yerkes, 1858), pp. 822–3; E. H. English, ed., *A Digest of the Statutes of Arkansas . . .* (Little Rock: Reardon & Garritt, 1848), pp. 769–70; U. B. Phillips, ed., *The Revised Statutes of Louisiana* (New Orleans: John Claiborne, 1856), pp. 398–9; Levi Peirce, Miles Taylor, and Wm. M. King, eds., *The Consolidation and Revision of the Statutes of the State, of a General Nature* (New Orleans: Bee Office, 1852), pp. 530–1; H. P. N. Gammel, ed., *The Laws of Texas, 1822–1897* (Austin: Gammel, 1898), v. 2, pp. 1497–1501.

Chapter 4
Slavery and the Southern Economy

I

Robert Fogel and Stanley Engerman rested their claim that the antebellum southern economy was vibrant and dynamic on figures reproduced in Table 4.1. Based on prior studies from the National Bureau of Economic Research by Richard A. Easterlin and Robert E. Gallman, these figures made their debut in an Engerman article appearing in 1967 and have remained unaltered through the publication of Fogel's *Without Consent or Contract* in 1989.[1] Easterlin had employed census data to reconstruct the relative income per person for various regions within the United States at twenty–year intervals from 1840 to 1900 and ten–year intervals thereafter.[2] By applying these shares to Gallman's census–based estimates of total national output, Engerman was able to derive the

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[1]Stanley L. Engerman, "The Effects of Slavery upon the Economy: A Review of the Recent Debate," *Explorations in Entrepreneurial History*, 2nd ser., 4 (Winter 1967), 71–97; Engerman, "Some Economic Factors in Southern Backwardness in the Nineteenth Century," in John F. Kain and John R. Meyer, eds., *Essays in Regional Economics* (Cambridge, MA: Harvard University Press, 1971), p. 287; Robert William Fogel and Engerman, "The Economics of Slavery," in Fogel and Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971), p. 335; Fogel and Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), p. 248; Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989), p. 85.

[2]Richard A. Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth Series, v. 24 (Princeton, NJ: Princeton University Press, 1960); Easterlin, "Regional Income Trends, 1840–1950," in Seymour E. Harris, ed., *American Economic History* (New York: McGraw–Hill, 1961).

real per capita income for each region in 1840 and 1860.[3] Because the results showed that "income increased more rapidly in the South than in the rest of the nation," the authors of *Time on the Cross* have paraded them as decisive refutation of any economic drain from the peculiar institution.[4]

The derivation of these numbers is complex and roundabout. Nor had the new economic historians been the first to try and tease regional information from census data. That honor goes to two antebellum writers: George Tucker and Ezra C. Seaman. Tucker was a professor of political economy at the University of Virginia who believed that slavery was a necessary evil doomed to disappear and who published estimates of state income in 1843; Seaman was a midwestern lawyer, former government official, and ardent protectionist who first published such estimates five years later and then revised them in 1852.[5] Both relied upon the 1840 Census to conclude that southern income was unexpectedly high.

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[3]Robert E. Gallman, "Gross National Product in the United States, 1834–1909," in National Bureau of Economic Research, *Output, Employment and Productivity in the United States After 1800*, Studies in Income and Wealth Series, v. 30 (New York: Columbia University Press, 1966).

[4]Fogel and Engerman, *Time on the Cross*, v. 1, p. 6.

[5]George Tucker, *Progress of the United States in Population and Wealth in Fifty Years: As Exhibited by the Decennial Census from 1790 to 1840, With an Appendix Containing an Abstract of the Census of 1850* (New York: Press of Hunt's Merchant's Magazine, 1855), reprints the 1843 edition unchanged and in its entirety, with a new appendix; Ezra C. Seaman, *Essays on the Progress of Nations, in Civilization, Productive Industry, Wealth and Population . . .* (New York: Charles Scribner, 1852). Robert E. Gallman evaluates the work of Tucker and Seaman in "Estimates of American National Product Made Before the Civil War," *Economic Development and Cultural Change*, 9 (Apr 1961), 397–412, reprinted in Ralph L. Andreano, ed., *New Views on American Economic Development: A Selective Anthology of Recent Work* (Cambridge, MA: Schenkman, 1965). For background on the economic views of these early compilers of national income accounts, consult Joseph Dorfman, *The Economic Mind in American Civilization, 1606–1865* (New York: Viking Press, 1946), v. 2, pp. 539–51, 881–9, 952–5. Further details on Tucker are in Leonard C. Helderman, "A Social Scientist of the Old South," *Journal of Southern History*, 2 (May 1936), 148–74.

Indeed, Seaman went on to be an early proponent of the view "that slave labor, employed in the culture of cotton in the southern slave States, is more profitable and productive, than free labor employed in agriculture in the free States."[6] Census returns also provided ammunition for Hinton Rowan Helper's explosive critique of the slave–state economies, *The Impending Crisis of the South*, published in 1857. Helper however misinterpreted or misrepresented much of his evidence, to the point of using total measures when he should have used per capita ones.[7] Seaman's techniques, on the other hand, were so meticulous and modern that his results were adopted by Easterlin with only minor modifications.

Seaman had estimated the economic output generated within each state for 1840. The major drawback was that his totals included only commodity production and distribution. They therefore omitted any output originating from "finance, insurance, real estate, and services, including government, and of imputed rents and mortgage interest on nonfarm owner–occupied homes."[8] To get these unreported values for each state, Easterlin extrapolated backwards from 1880, such information being available for the later date. This yielded regional per capita income as a percentage of the national average *for 1840*. But to get comparable percentages *for 1860*, Easterlin had to extrapolate again, this time forward. Gallman had already constructed from the 1840, 1850, and 1860

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[6]Seaman, *Essays on the Progress of Nations*, p. 463.

[7]Hinton Rowan Helper, *The Impending Crisis of the South: How to Meet It* (1857; reprint edn., Cambridge, MA: Harvard University Press, 1968); Fogel and Engerman, *Time on the Cross*, v. 1, pp. 161–9.

[8]Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," p. 132.

Censuses, along with other available sources, time series on the three sectors of the U.S. economy that accounted for six tenths of output: agriculture, mining, and manufacturing.[9] Easterlin apportioned total commodity output in 1860 among the various regions according to proxies from that year's census and then added on estimates extrapolated from his 1840 figures to flesh out the remaining sectors for each region.[10]

Easterlin's results, reproduced in Table 4.2, were expressed only as regional percentages because he did not have confidence that the underlying data could justify absolute values. Engerman however converted Easterlin's income *relatives* into income *levels* with the aide of the expanded time series Gallman had constructed and published in 1966.[11] It went beyond Gallman's earlier series on commodity output to provide estimates of the country's total gross national product, in both current and 1860 prices, at five year intervals beginning in 1839. After making small adjustments, such as removing output from the Pacific and Mountain states, Engerman divided Gallman's estimates by total population to compute per capita income in 1840 and in 1860 for the entire country (both in 1860 prices), and also applied Easterlin's relatives to apportion per capita income for each region.

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[9]Robert E. Gallman, "Commodity Output, 1839–1899," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century.*

[10]Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," p. 137, Table D–2, first presented the 1840 relatives, but those for 1860 only made their appearance in Easterlin, "Regional Income Trends, 1840–1950," p. 528.

[11]Gallman, "Gross National Product in the United States, 1834–1909," p. 26.

II

Using the figures in Table 4.1 to evaluate chattel slavery's impact on the

southern economy poses three dangers. The first is reliability. Statistics on

national income are, of course, the standard way of measuring an economy's

performance nowadays. There are a lot of related measures (gross national

product, gross domestic product, net domestic product, etc.) with minor technical

differences.[12] We can conceive of them as representing alternately an economy's

aggregate output or its aggregate income. Dividing them by a country's

population provides an approximate measure of material well being, on average.

But the total magnitudes are all inherently imprecise, despite everything that

modern governments do to collect and refine these statistics. Imagine then how

much more riddled with imprecision must be estimates for periods like the

antebellum era, long before governments regularly gathered the data.

Easterlin's work has consequently not gone unquestioned. Gerald

Gunderson in 1973, for instance, challenged the plausibility of the income shares

attributed for 1840 to the South Atlantic and East South Central regions relative to

the West South Central. "The villain," in Gunderson's opinion, was not

Easterlin's methods for deriving his estimates, but "is to be found in the data

themselves—particularly in the Census of 1840. . . . Scholars familiar with the

enumeration procedures of the census of the United States rank the 1840 effort as

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[12]Easterlin's estimates were constructed on a "where paid" rather than "where received" basis, making them more akin to our modern *domestic* product than to *national* product. Yet at the same time, by estimating "income originating" rather than "value added," Easterlin was more closely approximating domestic *income* rather than either *gross* or *net* domestic *product.* Gallman, in contrast, derived estimates for gross national product.

among the worst."[13] Other economic historians have cast doubts on how representative was the census for twenty years later, since it reported the 1859 cotton crop, one that was unusually bountiful.[14] Raymond L. Cohn tried to measure this bias and concluded that it artificially raised southern income by at most a few dollars. A more serious lacuna, in Cohn's opinion, were Easterlin's extrapolations of non–commodity output. Correcting them for 1860 pushed down output per capita in the South even further, while bringing it up significantly in the Midwest.[15]

A few irregularities also accompanied Engerman's adaptation of Easterlin's numbers. Wherever Fogel or Engerman have included maps to depict the states included in each region, Maryland and Delaware appear in the South Atlantic region.[16] If you read the fine print, however, you find that the income of

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[13]Gerald Gunderson, "Southern Ante–bellum Income Reconsidered," *Explorations in Economic History*, 10 (Winter 1973), 162. Details on the 1840 Census are in Carroll D. Wright, *The History and Growth of the United States Census* (Washington: Government Printing Office, 1900), pp. 32–39. Defenses of Easterlin's estimates can be found in Fogel and Engerman, *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), pp. 162–3, and Robert E. Gallman, "Southern Ante–Bellum Income Reconsidered," *Explorations in Economic History*, 12 (Jan 1975), 89–99. Gunderson replies to Gallman in *ibid.*, 101–2.

[14]Gavin Wright, "Slavery and the Cotton Boom," *Explorations in Economic History*, 12 (Oct 1975), 439–51; Wright, "Prosperity, Progress, and American Slavery," in Paul A. David, *et. al.*, *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery* (New York: Oxford University Press, 1976), pp. 325–6; Wright, *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: W. W. Norton, 1978), pp. 103–5; Roger L. Ransom and Richard Sutch, *One Kind of Freedom: The Economic Consequences of Emancipation* (Cambridge: Cambridge University Press, 1977), pp. 264–6.

[15]Raymond L. Cohn, "Antebellum Regional Incomes: Another Look," *Explorations in Economic History*, 18 (Oct 1981), 330–46. Cohn actually made his corrections to Engerman's revisions rather than Easterlin's original numbers.

[16]Fogel and Engerman, *Time on the Cross*, v. 1, p. 248; Fogel, *Without Consent or Contract*, p 85.

these two slave states is actually incorporated into the Northeast. The same maps are correct, however, in showing the slave state of Missouri as part of the North Central region. Thus, of the four border slave states, three of them, with 6 percent of the country's total population in 1860, are counted as part of the North rather than the South. Easterlin excluded Texas from his estimates for 1840, because it was not yet part of the Union. In his regional relatives for 1860, Texas is still not counted in the South although it is part of the national average. Engerman, in contrast, added Texas to the West South Central region for both years, arbitrarily assigning it the same per capita income in 1840 as in 1860. He did it that way to bias downward the South's rate of growth, but at the same time, he biased upward the South's income level in 1840.

Even if we ignore these quibbles and tentatively accept the conjectures of the new economic historians, a second danger arises from confusing income levels with rates of growth. This is an elementary distinction that nonetheless traps the unwary. It is akin to differentiating between who is currently ahead in a race versus who is running fastest. As the fable about the tortoise and hare reminds us, the two are not necessarily identical. During the early 1990s, the American media was rife with warnings about Japan's economy growing faster than the U.S. economy. Indeed, it was. But if the two countries' levels of per capita, real income were properly compared (on the basis of purchasing power parity), Japan never actually overtook the United States, because it started out farther behind. (Of course, even if Japan had achieved a higher income level, as it briefly appeared to have done when making comparisons using exchange rates,

there still was no reason for alarm, but that is another and separate, popular fallacy.)

With capital mobility between North and South, we would expect the peculiar institution's cost to register first in relative income levels rather than rates of growth, especially during a decade with a cotton boom. After all, in the modern U.S. economy, economists have identified many significant sources of deadweight loss, from agricultural price supports to trade restrictions. They each make Americans poorer on average than otherwise. Yet all of them combined have not halted sustained secular increases in real income per person within the United States. To pick another example, all growing economies somehow manage to override the real burden imposed by their legal and penal systems, despite the fact that crime is inefficient. Only when total deadweight loss is severe enough, or when it stifles capital accumulation, does it threaten economic growth.

Consider now the first two columns in Table 4.1. Per capita income in the South, counting slaves as part of the population, was almost one–third lower than in the North as of 1840—$74 compared with $109 (at 1860 prices). Southern per capita income had risen by 1860 to $103, while that in the North had risen to $141, reducing the percentage difference only slightly. These gaps are consistent with the perceptions of contemporary outside observers and many Southerners themselves, who almost uniformly commented on the economic backwardness of the slave states compared to the free states. Perhaps the best known such observer was the French traveler, Alexis de Tocqueville, who noted the contrast as he traveled down the Ohio River in 1831:

On the left bank of the river the population is sparse; from time to time one sees a troop of slaves loitering through half–deserted fields; the primeval forest is constantly reappearing; one might say that society had gone to sleep; it is nature that seems active and alive, whereas man is idle.

But on the right bank a confused hum proclaims from afar that men are busily at work; fine crops cover the fields; elegant dwellings testify to the taste and industry of the workers; on all sides there is evidence of comfort; man appears rich and contented; he works.[17]

Not all of this relative backwardness was attributable to the peculiar institution. Despite a steady decline in import duties, tariffs fell disproportionately on Southerners, reducing their income from cotton production by at least 10 percent just before the Civil War.[18] But more important, regional disparities understate slavery's harm. Remember that compulsion artificially stimulated the South's production of cotton and other staples. As we have observed in Chapter 3, slavery drove Southern output *up*, at the cost of economic efficiency. By Fogel and Engerman's calculations, this added $16 million to the South's income in

[17]Alexis de Tocqueville, *Democracy in America*, 13th edn., trans. by George Lawrence (1850; reprint edn., Garden City, NY: Doubleday, 1969), v. 1, pp. 345–6, the first edition of which was published in 1835. Frederick Law Olmsted made far more extensive observations and was struck by the same contrast in *A Journey in the Seaboard Slave States: With Remarks on Their Economy* (New York: Dix & Edwards, 1856); *A Journey through Texas or, A Saddle–Trip on the Southwestern Frontier* (New York: Dix, Edwards, 1857); and *A Journey in the Back Country* (New York: Mason Brothers, 1860). These three volumes were combined and abridged into *The Cotton Kingdom: A Traveller's Observations on Cotton and Slavery in the American Slave States*, (1861, reprint edn.; New York Alfred A. Knopf, 1953). For Southern perceptions, consult Robert Royal Russel, *Economic Aspects of Southern Sectionalism, 1840–1861* (Urbana: University of Illinois Press, 1924).

[18]John A. James, "The Optimal Tariff in the Antebellum United States," *American Economic Review*, 71 (Sep 1981), 726–734, especially Figure 2. (The published version of the article transposed the titles for Figures 2 and 3, and the article's text follows the titles rather than the actual figures.)

1850, or over $1.50 per person.[19] The fact that income per capita was still

noticeably lower than in the North, even though the black population was forced

to work longer or harder, is a stunning indictment of antebellum slavery.

In short, if we examine relative income *levels*, there is no dispute, to quote

Gallman, that "the level of ante–bellum income was lower in the South than in the

North by a substantial, but not enormous, margin."[20] Fogel and Engerman,

however, focused on growth *rates*. Even there, Easterlin's original figures

indicated that:

> . . . the income gap between Northeast and South was greater in 1860 than
> in 1840. This conclusion implies a relative deterioration in the income
> position not only of the total Southern population but of the favored white
> population as well. Moreover, . . . it is likely that the figures understate the
> widening of the relative income gap.[21]

This relative deterioration is evident in Table 4.2, where Easterlin's results

appear not as absolute levels of income per capita but as relative levels. The

understatement to which he refers follows from his derivation of the income

relatives from commodity production only. Because Easterlin extrapolated the

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[19]$16 million adds together the gains of slaves and slaveholders from Table 3.1. Dividing by the South's 1850 population, 9.665 million, yields $1.66 per capita in 1850 prices. But Table 4.1 is in 1860 prices, which are 4 percent higher according to Robert Gallman's GNP deflator, "Gross National Product in the United States, 1834–1909," p. 26, or $1.72 per capita. Since we are dealing with measures of national and regional income, the GNP deflator is probably a more appropriate price index than the composite consumer price index in John J. McCusker, *How Much is That in Real Money?: A Historical Price Index for Use as a Deflator of Money Value in the Economy of the United States* (Worcester, MA: American Antiquarian Society, 1992), p. 329—which would raise the estimate by 6 instead of 4 percent.

[20]Robert E. Gallman, "Slavery and Southern Economic Growth," *Southern Economic Journal*, 45 (Apr 1979), 1011.

[21]Easterlin, "Regional Income Trends, 1840–1950," p. 530.

value added from such activities "as finance and real estate, personal and professional service, and government," his estimates would not capture any gains in those areas of the North relative to the South during the two decades in question.[22]

Only after Engerman added in Texas, did the South's overall growth (1.7 percent annually) manage to exceed the national average (1.4 percent annually).[23] Even then, in each of the South's three component regions—South Atlantic, East South Central, and West South Central—per capita income grew more slowly than the national average. This apparent anomaly is explained by the shift of the South's population from the states where per capita income was below average into the rich lands of the West South Central states (Texas, Louisiana, and Arkansas) where per capita income was already above average. Why moving slaves and other economic resources would have this effect is perhaps clearer in the second two columns of Table 4.2, where I have recast Fogel and Engerman's absolute levels of income from Table 4.1 into implicit relative levels, analogous to Easterlin's original data.

A discovery that the rising income levels of North and South *may* have been converging is nothing to boast about, moreover. It is what normally happens within integrated economies. The market tends to eliminate regional disparities in income through the movements of labor, capital, and commodities. Unless

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[22]*Ibid.*, p 533.

[23]As Ransom and Sutch have pointed out, in *One Kind of Freedom*, p. 266, "[t]he rates calculated by Engerman's procedure are extremely sensitive to small changes in the per capita income relatives, yet Easterlin reported his relatives only to the nearest percentage point."

interdicted by political or other barriers, resources inevitably flow out of regions where they command lower prices into regions where they command higher prices, equilibrating market returns. So much diverse empirical evidence now substantiates this theoretical presumption that economist Larry Summers has dubbed it the "iron law of convergence." Whether looking at the post–Civil War United States, states within regions of the U.S., the four regions of West Germany after 1950, north and south Italy over the same period, or indeed the different nations within the European Union, the income gaps seem to close at the rate of 2 percent per year, once the economic obstacles are removed.[24]

By that standard, what is most striking about the growth rates in Table 4.1 is not the slight convergence of North and South, brought about mainly by migration between the South's subregions. Nor is it the slower rate of growth in the high–income West South Central states, as they converge toward the national average. Rather, it is the widening differential between the low–income South Atlantic/East South Central states and the North. Despite migration into the Southwest, these nine states still account for more than 80 percent of the South's people in 1860 (as Easterlin, Fogel, and Engerman define the South, which recall excludes Missouri, Maryland, and Delaware). Yet these two southern regions are falling behind the rest of the country. Engerman in at least one early presentation of these estimates was careful enough to acknowledge the significance:

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[24]Robert J. Barro and Xavier Sala–I–Martin, "Convergence Across States and Regions," *Brookings Papers on Economic Activity*, no. 1 (1991), 107–82; Barro, *Getting it Right: Markets and Choices in a Free Society* (Cambridge, MA: MIT Press, 1996), pp. 12–17.

Again it is clear the margins are such that the estimates cannot be used to forcibly argue that the South was converging upon the national average. The moderate course would seem to be that it is hard, on the basis of these data, to establish a relative movement in either direction for the antebellum South.[25]

The South had not always been poorer the North. Any measures of regional wealth or income before 1840 are even less systematic and dependable than after. But the best evidence indicates that at the outbreak of the American Revolution the South was the country's wealthiest region. Alice Hanson Jones puts per capita wealth (counting slaves and indentured servants as wealth) for the entire Southern population (both slave, servant, and free) at 17.6 percent above the national average.[26] Of course, per capita wealth is not identical to per capita income, as we will observe below. Nevertheless, her findings coincide with the widespread impression that Britain's slave colonies in the Chesapeake, the Carolinas, and the sugar islands were those generating the most income. As late as 1790, for instance, North Carolina was more populous than New York.

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[25]Engerman, "Some Economic Factors in Southern Backwardness in the Nineteenth Century," p. 286.

[26]Alice Hanson Jones, *Wealth of a Nation to Be: The American Colonies on the Eve of the Revolution* (New York: Columbia University Press, 1980), pp. 54, 56, 58, 310. Jones's regional definition includes Maryland in the South but not Delaware. Her estimate of average per capita wealth for all thirteen colonies is 46.5 pounds sterling; for the South, 54.7. If slaves and indentured servants are *not* counted as wealth, the South drops slightly below the new national average of 37.4 pounds sterling, to 36.4. But if we confine this comparison to the free population, the average holding of non–human wealth in all thirteen colonies is 48.4 pounds sterling, and the average for the southern colonies is 61.6 pounds sterling, 21.4 percent higher. We should emphasize that these numbers are based on sampling of probate inventories, which unfortunately omitted all real estate for the South. Jones tried to fill this gap with other sources, but as she admits on p. xxxi, the "percentage of southern 'probate–type' wealthholders owning no land may be considerably higher than the 59 percent I found, compared with around 80 percent in the North." Because of this "very important measurement limitation," her estimate of southern wealth relative to other regions is biased downward.

Engerman believes that the South initially fell behind because the Revolution's costs impinged more heavily on that region, perhaps through the disruption of slavery.[27] Whatever the reason, what is more telling is that, once ahead, the North maintained its lead at a time when its population was increasing nearly twice as fast, due to the most extensive relative influx of immigrants in American history. Northern population doubled in the two decades prior to the Civil the War. Over 4 million foreign–born poured into the United States throughout the period, but at its close only 10 percent of them were residing within the slave states.[28] By 1860 the North held two–thirds of the country's total inhabitants. Immigrants usually help promote economic prosperity in the long run. But in the short run, such a flood would have tended to slow the growth of real, per capita income in the North.[29]

To be clear, the South was neither stagnant nor impoverished. Since the 1830s, the entire United States had been experiencing the sustained economic growth associated with the Industrial Revolution. Capital accumulation, technological innovation, and material abundance were transfiguring the landscape. These were the natural outcomes from the country's prior advances

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[27]Stanley L. Engerman, "A Reconsideration of Southern Economic Growth, 1770–1860," *Agricultural History*, 49 (Apr 1975), 348–50; Engerman, "Notes on the Patterns of Economic Growth in the British North American Colonies in the Seventeenth, Eighteenth and Nineteenth Centuries," in Paul Bairoch and Maurice Lévy–Leboyer, eds., *Disparities in Economic Development since the Industrial Revolution* (London: Macmillan Press, 1981), pp. 46–53.

[28]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series A 172–194, C89–119.

[29]This point has been made by Harold D. Woodman, "Economic History and Economic Theory: The New Economic History in America," *Journal of Interdisciplinary History*, 3 (Autumn 1972), 339, and Marvin Fischbaum and Julius Rubin, "Slavery and the Economic Development of the American South," *Explorations in Entrepreneurial History*, 2nd ser., 6 (Fall 1968), 118.

toward free trade, unrestricted migration, and virtual *laissez faire*. Unencumbered by domestic restraints on the flow of goods and services, the South was an integral part of this dynamic and vibrant marketplace. As a result, Southerners were materially better off than many peoples of the Old World.

Nor does the lack of southern industrialization, relative to the North, necessarily reflect a cost of slavery. True, fewer than one Southerner in ten lived in a town of at least 2,500 inhabitants in 1860, compared with one in three New Englanders. But urbanization in the South was not far behind the Midwest.[30] It was more efficient for a region like the South to specialize in agriculture, in which it had a comparative advantage, and permit the North to specialize in manufacturing.[31] Although the research of Fred Bateman, James D. Foust, and Thomas Weiss has found that manufacturing firms in the antebellum South earned rates of return substantially higher than the average of 10 percent earned by planters, this differential probably compensated for greater risk and, in any case, was the same for northern manufacturing relative to northern agriculture.[32]

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[30]*Historical Statistics of the United State*, pt. 1, series A 172–194.

[31]Thomas F. Huertas, "Damnifying Growth in the Antebellum South," *Journal of Economic History*, 39 (Mar 1979), 87–100, reprinted in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992). Huertas shows how changing relative prices brought the South major benefits from specialization in agriculture.

[32]For the South, see Fred Bateman, James D. Foust, and Thomas Weiss, "Profitability in Southern Manufacturing: Estimates for 1860," *Explorations in Economic History*, 12 (Jul 1975), 211–31; Bateman and Weiss, "Manufacturing in the Antebellum South," in Paul Uselding, ed., *Research in Economic History: An Annual Compilation of Research*, v. 1 (Greenwich, CT: JAI Press, 1976); and Bateman and Weiss, *A Deplorable Scarcity: The Failure of Industrialization in the Slave Economy* (Chapel Hill: University of North Carolina Press, 1981). For the North, see Bateman and Jeremy Atack, "The Profitability of Northern Agriculture in 1860," in Uselding, ed., *Research in Economic History*, v. 4 (1979), and Atack and Bateman, *To Their Own Soil: Agriculture in the Antebellum North* (Ames: Iowa State University Press, 1987), pp. 247–66.

Moreover, Fogel points out that the "typical sugar factory was larger than the typical factory in textiles, and the rice–cleaning mills were typically larger than flour and grain mills, yet the 1850 and 1860 censuses classified most sugar production and rice cleaning with agriculture , while flour milling and textiles were classified with manufacturing." According to Donghyu Yang, when "such activities as sugar refining, rice cleaning, cotton ginning, [and] tobacco processing" are reclassified and "when artisan crafts are treated symmetrically in both regions [South and North], more than half of the industrial gap disappears."[33]

Traditional critics of the peculiar institution charged that it absorbed southern savings and thereby retarded economic development; the money planters invested in slaves could have been invested in railroads or factories. This charge confuses monetary with real phenomena. The money used to purchase a slave did not disappear but continued to circulate. Trading slaves from one owner to another no more absorbed savings than trading land or any other real asset. Some new economic historians, however, have offered a more sophisticated resurrection of this argument. An article by John E. Moes and another by Roger L. Ransom and Richard Sutch make the intriguing observation that whereas the costs of raising free children are consumption expenditures for the parents, those same costs for slave children appear to slaveowners as investment expenditures. Therefore, even if people in the slave states saved the same proportion of their

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[33]Fogel, *Without Consent or Contract*, pp. 103–4; Donghyu Yang, "Reclassifying Manufacturing to Explain the 'Southern Lag' in Industrialization," in Robert W. Fogel, Ralph A. Galantine, and Richard L. Manning, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Evidence and Methods* (New York: W. W. Norton, 1992), pp. 277–8.

aggregate income as those in the free states, less ended up actually invested in physical capital.[34]

Or to rephrase the argument in a slightly different form, free individuals do not view their own future earnings—as embodied in human capital—quite the same way as they view physical or financial assets that they can sell. The peculiar institution, by converting the human capital of slaves into physical assets for slaveholders, not only altered income distribution. "Because slaves were regarded as wealth," write Ransom and Sutch, "they would displace other assets . . . from the portfolios of slaveowners."[35] This would give the appearance of the kind of conspicuous personal consumption that Eugene Genovese and other historians have attributed to planters.[36] Slavery becomes an antebellum counterpart to modern government debt, which many economists believe also depresses savings by creating assets for holders of government bonds with no obvious offsetting liabilities for taxpayers. Fogel and Engerman, in contrast, argued that slavery may have actually stimulated saving. It artificially held down slave consumption and simultaneously gave planters an additional form of collateral with which they could borrow from the North and abroad.[37]

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[34]John E. Moes, "The Absorption of Capital in Slave Labor in the Ante Bellum South and Economic Growth," *American Journal of Economics and Sociology*, 20 (Oct 1961), 535–41, and Roger L. Ransom and Richard Sutch, "Capitalists Without Capital: The Burden of Slavery and the Impact of Emancipation," *Agricultural History*, 62 (Summer 1988), 133–60.

[35]"Capitalists Without Capital," 141.

[36]Eugene Genovese, *The Political Economy of Slavery: Studies in the Economy and Society of the Slave South* (New York: Random House, 1965), p. 158.

[37]Fogel and Engerman, "The Economics of Slavery," pp. 336–7.

Any such absorption of savings could reduce southern growth rates—if it showed up at all. Unlike deadweight loss, less savings today does not affect *current* output but rather *future* output, by increasing current consumption and slowing the creation of capital goods. So long as saving freely flowed from North to South, however, this impact would not be confined to the slave states. Instead, it would decrease the country's overall economic growth, while leaving almost no trace within the South itself. Ransom and Sutch did note the acceleration of the per capita growth rate of the United States after the Civil War decade, along with a rise in the share of U.S. output going to capital formation.[38] But given the South's postbellum economic distress, it is questionable whether this additional savings came from that region. I therefore remain agnostic over the secondary issue of how slavery may have affected southern saving. What we do know is that people in the slave states were poorer on average than in the free states—if we include slaves in our calculations. And the gap does not appear to have been closing at any rate we might reasonably expect. These facts point to more than just an absorption of savings. They indicate a significant welfare burden resulting from inefficiency.

This leads to the third danger surrounding estimates of regional income: the question of how to count black slaves. So far we have included them in our per capita figures. But if we wish to isolate the impact of slavery upon the free population, we can drop the slaves out. This entails not simply subtracting them

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[38]Robert E. Gallman, "American Economic Growth before the Civil War: The Testimony of the Capital Stock Estimates," in Gallman and John Joseph Wallis, eds., *American Economic Growth and Standards of Living before the Civil War* (Chicago: University of Chicago Press, 1992); and Gallman, "Gross National Product in the United States, 1834–1909," pp. 10–14.

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from the total population; we must also reduce total income by the amount that slaves consumed. In the terminology of national income accounts, human chattel and the resources used to maintain them become intermediate goods.

As you can observe in Table 4.1, the authors of *Time on the Cross* did compare the free populations of the two regions. According to their numbers, leaving out slaves results in a slight northern lead in per capita income in 1840 but a reversal of that in 1860, $150 for the South as compared with $144 for the North. These numbers, unfortunately, assume that slaves consumed only $20 per year. Since this does not jibe with the Fogel and Engerman's contention that annual per capita income for slaves was at least $34.13, it is hard to understand why they settled on a $20 adjustment (even though it did yield a slightly lower rate of economic growth for the South) and continue to do so as recently as Fogel's *Without Consent or Contract*.[39]

A return to Table 2.1 reveals that most other cliometricians have judged average slave consumption to be about $30 per year.[40] Fogel and Engerman's estimates are somewhat higher than even the table suggests because the $34.13 is not their *average* consumption for all slaves but their *basic* consumption for slaves on small farms. It fails to average out the additional $8.86 that the authors of *Time on the Cross* believe was the *minimum* received by slaves on large

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[39]Fogel and Engerman, *Time On the Cross*, v. 2, p. 117. Engerman derived the $20 estimate from Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington: Carnegie Institution, 1933), v. 1, p. 544, long before *Time on the Cross* was published, and then seems to have stuck with it through inertia.

[40]See also the citations above in ch. 3, n. 5.

plantations, enhancing their annual consumption to at least $42.99.[41] Table 4.3

therefore re–computes free income per capita for each region with average slave

maintenance at $30 and at $40. The 1860 lead of southern whites almost vanishes

under the first revision and is actually reversed under the second.

If the peculiar institution made non–slaveholding whites in the South

poorer, the consequences would not necessarily show up in the average income of

white Southerners, because slaveowners were made richer. Yet as we see, not

merely were all Southerners, free and slave, on average poorer than Northerners.

For 1840, free whites were also on average poorer throughout the South and

within each of its sub–regions except the Southwest (which we know is too high

because of Engerman's deliberate overestimate of Texas output in that year). For

1860, free Southerners overall are in a dead heat with Northerners, and behind in

each sub–region except again the Southwest. All this, despite significant planter

exploitation of enslaved blacks.

A simple analogy suggests why we may reasonably speculate that the

losses of white non–slaveholders probably exceeded their gains. Let us assume we

could compare the per capita income of two regions in medieval Europe. The

inhabitants of Region A are poorer on average than those of Region B. But in

Region A, we decide to drop all serfs out of the comparison. We then discover

that within Region A—even after we have ignored the population's poorest third

(the approximate percent enslaved in the antebellum South)—average income

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[41]Fogel and Engerman, *Time On the Cross*, v. 2, pp. 116–7, 159–60. See also Fogel, "A Method of Estimating the Income Distribution of Slaves c. 1860 from the Available Patchy Evidence," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract: Evidence and Methods*, pp. 371–9.

hardly exceeds that in Region B, where we still include the poorest. Would this constitute glowing testimony to the economic vibrancy of Region A? Hardly. Moreover, if the upper two–thirds of Region A's population is only just as prosperous as Region B's entire population, it would seem that serfdom has not brought many economic benefits to the average non–serf in Region A.

A similar analysis applies to the concentration of wealth in the pre–Civil War United States. The relative economic status of the South's nonslaveholding farmers has been a subject of controversy since the classic studies of Frank Owsley and his students.[42] Historians have made innumerable efforts to measure precisely the extent of inequality in both the slave and free states.[43] We have no

[42]Frank Lawrence Owsley, *Plain Folks of the Old South* (Baton Rouge: Louisiana State University Press, 1949). An incredibly thorough survey of this literature is Randolph B. Campbell, "Planters and Pain Folks: The Social Structure of the Antebellum South," in John B. Boles and Evelyn Thomas Nolan, eds., *Interpreting Southern History: Historiographical Essays in Honor of Sanford W. Higginbotham* (Baton Rouge: Louisiana State University Press, 1987).

[43]Robert E. Gallman, "Trends in the Size Distribution of Wealth in the Nineteenth Century: Some Speculations," in National Bureau of Economic Research, *Six Papers on the Size Distribution of Wealth*, Studies in Income and Wealth Series, v. 33 (New York: Columbia University Press, 1969); Gavin Wright, "'Economic Democracy' and the Concentration of Agricultural Wealth in the Cotton South, 1850–1860," *Agricultural History*, 44 (Jan 1970), 63–93, reprinted in William N. Parker, ed., *The Structure of the Cotton Economy of the Antebellum South* (Washington: Agricultural History Society, 1970); Edward Pessen, *Riches, Class, and Power Before the Civil War* (Lexington, MA: D. C. Heath, 1973); Lee Soltow, "Economic Inequality in the United States in the Period from 1790 to 1860," *Journal of Economic History*, 31 (Dec 1971), 822–39; Soltow, *Men and Wealth in the United States, 1850–1870* (New Haven: Yale University Press, 1975); Albert W. Niemi, Jr., "Inequality in the Distribution of Slave Wealth: The Cotton South and Other Southern Agricultural Regions," *Journal of Economic History*, 37 (Sep 1977), 747–53; Wright, *The Political Economy of the Cotton South*, pp. 24–42; Donald F. Schaefer, "Yeoman Farmers and Economic Democracy: A Study of Wealth and Economic Mobility in the Western Tobacco Region, 1850 to 1860," *Explorations in Economic History*, 15 (Oct 1978), 421–37; Donghyu Yang, "Notes on the Wealth Distribution of Farm Households in the United States, 1860: A New Look at Two Manuscript Census Samples," *ibid.*, 21 (Jan 1984), 88–102, reprinted in Fogel, Galantine, and Manning, eds., *Without Consent or Contract: Evidence and Methods*, pp. 245–56; Schaefer and Mark Schmitz, "The Parker–Gallman Sample and Wealth Distributions for the Antebellum South: A Comment," *Explorations in Economic History*, 22 (Apr 1985), 220–6, with Yang's reply on 227–32; Atack and Bateman, *To Their Own Soil*, pp. 86–101; Roger L. Ransom, *Conflict and Compromise: The Political Economy of Slavery, Emancipation, and the American*

need to examine this extensive literature in detail, but some theoretical observations are in order.

The two distinct magnitudes, wealth and income, are related to each other in the same fashion as slave prices and slave transfers. Just as a slave's price is the discounted present value of his or her anticipated future transfers, so wealth in general is the discounted present value of some anticipated future income. Accurately appraising *all* future income—including the labor income of workers, i.e., their human capital—would avoid some of the dissimilarity between the distribution of wealth and the distribution of income. Slavery, however, is one of the only cases where the market attaches an actual value to human capital. Consequently, most measures of wealth include only tangible assets, such as land or physical capital, and thereby omit the predominate form of future earnings for much of the population. Because of this crucial omission, tangible wealth inevitably will be more unequally distributed than income.

Also keep in mind that both income and wealth tend to vary with age. The profiles depicted in Figure 2.2 for the price and earnings of slaves can mirror very roughly the profiles for wealth and income over a free person's life. True, the income of free laborers often peaks at a later age, and unless an individual saves nothing, his wealth profile will usually trail rather than lead his income profile. Nonetheless, free laborers in their prime ordinarily earn more than youngsters and

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Civil War (Cambridge, UK: Cambridge University Press, 1989), pp. 60–8; Yang, "Recent Findings on the Distribution of Wealth, on Social Structure, and on Economic Mobility Among Free Southerners During the Late Antebellum Era," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract: Evidence and Methods*, pp. 243–5; Nathaniel T. Wilcox, "Understanding the Distribution of Urban Wealth: The United States, 1860," in *ibid.*, pp. 419–58; Wilcox, "A Note on the Occupational Distribution of the Urban United States in 1860," in *ibid.*, pp. 458–73.

the elderly. Some measured inequality will therefore reflect differences in age

rather than in social class. By looking at *households* rather *individuals*, you can at

least eliminate infants. Yet still, a society will exhibit some inequality at any one

moment even if everyone's lifetime stream of income is identical, so long as that

stream varies with age. This becomes particularly important when comparing two

regions. To be fully valid, the comparison must adjust for demographic

differences.[44]

Given these strictures, a few conclusions stand out. First, the average

wealth of non–slaveholding farm households in the cotton belt in 1860 ($1,777)

was higher than the average wealth of urban households headed by manual

laborers in northern cities ($144) and of rural laboring households in the North

($374), although not higher than the average wealth of urban households headed

by artisans in northern cities ($2,037).[45] Second, while slave ownership had

become increasingly concentrated in the decades prior to the Civil War, falling

from 36 percent of southern families in 1830 to only 25 percent in 1860, land

ownership in the slave states had not.[46] Indeed, the westward expansion of cotton

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[44]For a fascinating exchange that turns, in large part, on this issue—the impact of a population's age structure on wealth distribution—see Robert E. Gallman, "Professor Pessen on the 'Egalitarian Myth'," *Social Science History*, 2 (Winter 1978), 194–207; Edward Pessen, "On a Recent Cliometric Attempt to Resurrect the Myth of Antebellum Egalitarianism," *ibid.*, 3 (Winter 1979), 208–27; Gallman, "'The Egalitarian Myth,' Once Again," *ibid.*, 5 (Spring 1981), 223–34: and Pessen, "The Beleaguered Myth of Antebellum Egalitarianism: Cliometrics and Surmise to the Rescue," *ibid.*, 6 (Winter 1982), 111–28.

[45]Yang, "Recent Findings on the Distribution of Wealth, on Social Structure, and on Economic Mobility Among Free Southerners During the Late Antebellum Era," p. 245; Wilcox, "A Note on the Occupational Distribution of the Urban United States in 1860," p. 460. These numbers and most of those that follow are based on samples drawn from the manuscript schedules of the 1860 Census (such as the Parker–Gallman sample).

[46]Soltow, "Economic Inequality in the United States in the Period from 1790 to 1860," 825.

production was dominated by small farmers, both those owning no bondsmen and those owning a small number.[47] Thus, as Yang has pointed out:

> Available evidence suggests that the Southern agricultural economy on the eve of the Civil War lay somewhere between the two traditional pictures in which it is often described. It did not consist of two classes, a small number of wealthy planters at the top and a great mass of poor peasants below. Nor was there a large "prospering" middle class who operated "typical" Southern farms. Investigation of wealth distribution reveals that although there was a large landowning yeoman farmer class in the South, it was substantially poorer than was its Northern counterpart.[48]

In fact, compared to the $1,777 average wealth of free farms in the cotton belt, average household wealth in the rural North was $2,483, including farm owners, laborers, and everyone else. Furthermore, "the inequality of the wealth distribution in the rural South at the eve of the Civil War was substantially higher than the inequality of the rural North." The average slaveholding farm was worth $24,708, and the average plantation of more than 15 slaves was worth $56,458.[49] Only when the North's urban population is thrown into the comparison, do you get similar wealth distributions in both regions. All these figures count slaves as wealth, thereby including some human capital but not other. Bear in mind, however, that slave prices capitalized only that portion of future earnings that slaveholders' expropriated. Any earnings that provided for the slave's future

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[47]James D. Foust, *The Yeoman Farmer and Westward Expansion of U.S. Cotton Production* (New York: Arno Press, 1975).

[48]Yang, "Notes on the Wealth Distribution of Farm Households in the United States, 1860: A New Look at Two Manuscript Census Samples," 99.

[49]Yang, "Recent Findings on the Distribution of Wealth, on Social Structure, and on Economic Mobility Among Free Southerners During the Late Antebellum Era," pp. 244–5.

consumption were not captured in the price and were instead overlooked, just like the earnings of free laborers.

Couple all these observations with the additional fact that none of these comparisons has counted black slaves within the southern population. We are looking at a wealth distribution with the poorer third lopped off, which other things equal, should tend to reduce observed inequality. Yet this truncated distribution still displays almost the same disparities as in the North. In other words, the South's free non–slaveowners occupied the identical economic niche as did the bottom three quarters of the northern population. It is as if we returned to our medieval analogy, and found that, after ignoring the serfs of Region A (which remember has much the same average income, when its serfs are not counted, as does Region B), we discovered that Region A's distribution of wealth was equally skewed. This would seem to rule out much in the way of material rewards from the peculiar institution for nonslaveholders in the pre–Civil War South.

<center>III</center>

There remains one unanswered argument from the regional figures in Table 4.1. So far we have talked about the South versus the North and the South's three subdivisions, but we have said nothing about the two subdivisions of the North. A quick perusal of the first two columns, where we again count the entire population for our comparisons, reveals that the higher income of the average Northerner, in both 1840 and 1860, stems entirely from the Northeast, where manufacturing and urbanization was concentrated. Per capita income in the more agricultural North Central states, on the other hand, is only $65 in 1840 and $89

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in 1860. That makes these states poorer than the South overall in both years, and poorer than every southern section in 1840.

Simultaneously, the West South Central area in both years has the highest income per person of any subregion, even higher than the Northeast. Indeed, we find that in both 1840 and 1860, per capita income in the Southwest was more than twice what it was in the old Northwest. This creates an intriguing paradox. Population was migrating into both western regions over the two decades in question. In the South, this shift was from low income to high income areas, raising the South's growth rate above that of any of its subdivisions. But in the North, this shift was from high income to low income areas, lowering the North's growth rate below that of each of its subdivisions.

If slavery's deadweight loss did indeed reduce southern output, how do we explain the weak performance of the North Central states in contrast with the spectacular performance of West South Central states? This is really two related but separate questions. Let us begin with the Southwest because there is good reason to suspect that its income was not really quite so high in either year. We know this for a fact in 1840. As mentioned already, Engerman added to Easterlin's original estimate a per capita income for Texas achieved twenty years later, in 1860. The effect is clearly visible in Table 4.2, along the bottom row, where you can compare Engerman's relatives for the West South Central region with those of Easterlin, which are lower. However, the distortion is only minor for 1840, since Texas's population was a mere 72,000 to 75,000.[50] Counting only

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[50]Engerman got the lower figure by interpolating between the 1836 and 1846 populations found in Lewis W. Newton and Herbert P. Gambrell, *A Social and Political History of Texas*, rev ed.

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Louisiana and Arkansas would still leave the Southwest with an 1840 per capita income of $140.[51]

By the eve of the Civil War, however, Texas claimed 604,000 settlers, accounting for one–third of the subregion's total. And Engerman assigned them an income somewhere around $220 per person. This is extraordinarily high, making the Lone Star state almost the richest, North or South. Engerman has stated in private correspondence that he derived that number from "the census data on agriculture and manufacturing for the state,"[52] but my own examination of the 1860 Census, as detailed in the Appendix A, finds that the state's output per person may have been only $134. If we pull Texas out in 1860, per capita income in the West South Central states falls from $184 to $165, still high but below that for the Northeast (which includes two older slave states, Maryland and Delaware) and within the realm of plausibility.[53]

Even minus Texas, Gunderson argued that these wide income differentials were unlikely. Easterlin had attributed the Southwest's high output in 1840 to "the situation in Louisiana (which accounted for over 75 per cent of the division's

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(Dallas: Turner, 1935), p. 280. But Newton and Gambrell omitted the free Mexican population from their figures. A superior discussion of early Texas population, published long after Engerman made his estimates, is Randolph B. Campbell, *An Empire for Slavery: The Peculiar Institution in Texas, 1821–1865* (Baton Rouge: Louisiana State University Press, 1989), pp. 54–8. The 1840 estimate of 75,000 (15,000 of whom were slaves) is from William W. Freehling, *The Road to Disunion*, v. 1, *Secessionists at Bay, 1776–1854* (New York: Oxford University Press, 1990), p. 376.

[51]This calculation was made by Ransom and Sutch, *One Kind of Freedom*, p. 267. They essentially applied Easterlin's original relatives to Gallman's national product without making Engerman's adjustment for Texas.

[52]Letter from Stanley L. Engerman to me, dated 27 Sep 2000.

[53]Ransom and Sutch, *One Kind of Freedom*, p. 267.

population in 1840), where both commerce and agriculture were thriving as a result of the growing flow of trade down the Mississippi and a highly prosperous sugar–cane production based on slavery."[54] But as Gunderson pointed out, "cane sugar and river commerce contributed less than 40% of the output" of these states.[55] Therefore, logically those pursuits could not *by themselves* explain an output per person that was two times as great as in the neighboring East South Central states. Either cotton growing must have been significantly more productive in the Southwest or the differential was bogus. Where Gunderson then erred was in testing these income levels against values of average slave output (*W*) that were highly inflated for 1840.[56] He therefore mistakenly concluded that Easterlin's reported income was too low in the rest of the South rather than too high in the West South Central area. (Appendix B presents my own suspicions as to why Easterlin overestimated Louisiana income in 1840.)

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[54]Easterlin, "Regional Income Trends, 1840–1950," p. 527.

[55]Gunderson, "Southern Ante–bellum Income Reconsidered," 170. Gunderson's 40 percent refers to 1860 rather than 1840, but the percentage was nearly identical in the earlier year. Not counting the service sectors, Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," p. 98, put the total 1840 income of the two West South Central states at $47 million (1840 prices). Easterlin relied for estimates of output from commerce on Seaman, *Essays on the Progress of Nations*, p. 461, who gave a figure of $13.7 million for Louisiana and $.37 million for Arkansas. The 1840 Census, [U.S.] Department of State, *Compendium of the Enumeration of the Inhabitants and Statistics of the United States* (Washington: Thomas Allen, 1841), p. 240, reported Louisiana sugar production at 119.947 million pounds. Seaman's price of 4 cents per pound values sugar output at $4.798 million. Added together, sugar and commerce account for 40 percent of Easterlin's total income for the region.

[56]In order to convert data on slave hire rates (*T*) for prime hands into output (*W*) for the average slave, Gunderson assumed that slaves on average generated 54 percent of the income of a male field hand. This ratio is certainly too high. As discussed in n. 42 of Chapter 3, Fogel and Engerman use the more likely ratio of 39 percent. Moreover, Gunderson multiplied it times the hire rates (*T*) and than added on slave consumption (*M*). He should have added in male slave consumption first to get *W* and then multiplied it times his conversion factor, yielding lower estimates of average slave output. See *ibid.*, 154–6.

Whatever the Southwest's actual output per person, we should keep in mind that the it was still a small part of the Union as late as 1860. It had only 6 percent of the country's population, the same proportion as the three slave states (Missouri, Maryland, and Delaware) that Easterlin and Engerman incorporated into the North. This fact makes understandable how an antebellum cotton boom might have temporarily elevated the earnings of this resource–rich section, just as a rise in oil prices brings added income to countries endowed with that natural resource. During the antebellum period, the South Central states possessed such fertile soils and superior climate that in some cases, notably along the alluvial flood plains of the Mississippi river, the cotton yield per acre was twice that elsewhere.[57]

Gavin Wright is at the forefront of those who credit cotton with the economic good fortune of the entire South. From 1840 to 1860 world cotton demand was increasing at between 5 and 6 percent annually.[58] But these economic historians go too far when they try to explain away *all* of the slave states' growth this way. For while the pull of cotton demand was undoubtedly

[57]Wright, *The Political Economy of the Cotton South*, p. 18.

[58]*Ibid.*, pp. 89–127; Wright, "Slavery and the Cotton Boom," 447–51; Wright, "Prosperity, Progress, and American Slavery," pp. 324–9; Wright, "The Efficiency of Slavery: Another Interpretation," *American Economic Review*, 69 (Mar 1979), 219–26. Wright's argument was anticipated by Fischbaum and Rubin, "Slavery and the Economic Development of the American South." Wright computed the growth of international cotton demand at 5 percent, but John R. Hanson II, "World Demand for Cotton during the Nineteenth Century: Wright's Estimates Reexamined," *Journal of Economic History*, 39 (Dec 1979), 1015–21, revised that up to 6 percent. See also Wright's reply, *ibid.*, 1023–4. The reason that economists cannot infer increases in cotton demand by simply measuring cotton production is that supply also influences production. Supply interacts with demand as equilibrated through price. An expansion of cotton supply, by causing prices to fall, could induce greater purchases without any change in the intensity of demand. The estimates of 5 to 6 percent attempt to isolate annual demand increases by hypothetically holding constant cotton's relative price.

raising incomes in the Southwest, the resulting expansion of output was simultaneously holding down income in the Southeast. Several cliometric studies, including the work of Wright himself, have demonstrated that the crop's westward migration had two counteracting impacts on the older, cotton growing states. The demand for slaves to work in the west's richer soils drove up slave prices in the east. But the concomitant fall in cotton prices drove down prices of both slaves and land in Southeast, and those losses may have more than offset the gains.[59] It is no surprise, therefore, that an econometric regression by Fogel and Engerman finds that only "about one–fifth of the rise in southern per capita income can be attributed to the direct effects of the cotton boom on southern agriculture."[60]

What we can conclude, however, is that international demand does account for the unusually high *level* of per capita income in the Southwest. The region's behavior after the Civil War, when growth of cotton demand slackened, provides further confirmation. Easterlin's income relatives for all three of the

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[59]Peter Passell and Gavin Wright, "The Effects of Pre–Civil War Territorial Expansion on the Price of Slaves," *Journal of Political Economy*, 80 (Nov/Dec 1972), 1188–1202; Susan Previant Lee, *The Westward Movement of the Cotton Economy, 1840–1860: Perceived Interests and Economic Realities* (New York: Arno Press, 1977); Laurence J. Kotlikoff and Sebastian E. Pinera, "The Old South's Stake in the Inter–Regional Movement of Slaves, 1850–1860," *Journal of Economic History*, 37 (Jun 1977), 434–50, reprinted in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1; and Lee, "Antebellum Land Expansion: Another View," *Agricultural History*, 52 (Oct 1978), 488–502. For a skeptical appraisal that finds econometric errors in these demonstrations of the net negative impact of westward expansion, see Mark Schmitz and Donald Schaefer, "Paradox Lost: Westward Expansion and Slave Prices before the Civil War," *Journal of Economic History*, 41 (Jun 1981), 402–7.

[60]Robert William Fogel and Stanley L. Engerman, "Notes on the Explanation of the Growth of Southern Per Capita Income, 1840–1860," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract: Evidence and Methods*, p. 281.

South's regions decline from 1860 to 1880, but the decline in this western region exceeds that of the two eastern regions by a wide margin. The South Central states fall from a level comfortably above the national average to a per capita income that is only 60 percent of average.[61]

Whereas the incomes reported in Table 4.1 are overstated for the Southwest, they are understated for the Northwest. But here the bias is not from Engerman's modifications but in Easterlin's originals. Recall first that this area includes Missouri, the most populous slave state in 1860 after Virginia. Missouri contained at that time more than 10 percent of the North Central states' inhabitants and more than 50 percent of the *West* North Central states' inhabitants, where its effect was concentrated. By inspecting Table 4.2, you can observe the income relatives Easterlin calculated for this sub–subregion, which fell from 75 percent of the national average in 1840 to 66 percent in 1860. Missouri was actually boosting Northwest income in the earlier year, but the reverse was apparently true by eve of the Civil War.

Recall also that Easterlin did not have any direct observations on income originating in "finance, insurance, real estate, and services, including government, and of imputed rents and mortgage interest on nonfarm owner–occupied homes."[62] He therefore extrapolated the output of these sectors in both 1840 and 1860 from data for 1880. And he extrapolated his 1860 estimates of commodity

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[61]Easterlin, "Regional Income Trends, 1840–1950."

[62]Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," p. 132.

distribution (including all transportation) from 1840. According to Cohn, the extrapolated amounts for 1840:

> . . . comprised 39% of personal income in the Northeast, 28% in the Midwest, and 21% in the South. For 1860, . . . 54% of personal income in the Northeast, 38% in the Midwest, and 27% in the South was estimated . . . from non–1860 sources. Overall, some 32% of total personal income was estimated in 1840 and 43% in 1860 based on information from other years.[63]

To make such extensive extrapolations, Easterlin had to assume that the uncounted service sectors grew over the forty years between 1840 to 1880 at identical rates as had commodity production and distribution within each one of the subregions. Easterlin recognized that this did not allow for changes "in the *relative importance* of such activities," but he believed that "the probable result is that the figures understate to some extent the growth in per capita income in the Northeast [emphasis mine]."[64] Cohn however derived more direct estimates of the missing output by using available information about the labor force's composition and wage rates. Although he still had to make some assumptions, they were nowhere near as heroic as were Easterlin's. Cohn's conclusion was that in 1860 it was the Midwest's per capita income (not the Northeast's) that needed an upward revision, relative to both the South and Northeast. He increased Engerman's income relative (Table 4.2, second two columns) for that area by as much as 20 percent, from 70 to 84 percent; decreased Engerman's relative for the South by as

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[63]Cohn, "Antebellum Regional Incomes: Another Look," 331–2.

[64]Easterlin, "Regional Income Trends, 1840–1950," p. 533.

much as 6 percent, from 80 to 75 percent; and decreased Engerman's relative for the Northeast by as much as 4 percent, from 141 to 135 percent.[65]

Translating Cohn's revisions to the dollar amounts of Table 4.1, the 1860 income of the Northwest goes up to $108 per person, the South declines to $96 per person, and the Northeast falls slightly to $173 per person. The South is now poorer than both subregions of the North. The North Central states get the biggest adjustment because the service industries there grew much faster prior to 1860 than afterwards. This should come as no surprise if we look at Midwest urbanization. The industries we are talking about include trade, finance, transportation, construction, and others that tend to be centered around cities. Chicago's population soared from 4,470 in 1840 to 112,172 in 1860, a yearly expansion of 17 percent. Over the next twenty years the city's population reached 503,185, for an annual growth rate of only 8 percent.[66] The Northeastern states, in contrast, had already experienced their big surge in service output earlier, whereas for the southern states, such expansion only took place subsequent to emancipation.

Cohn had insufficient data to perform analogous revisions for 1840. But a third, major reason that Easterlin underestimated Northwest income has been investigated in detail for that very year by Easterlin himself. His original results

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[65]Cohn, "Antebellum Regional Incomes: Another Look," 336. Cohn actually presents two sets of revisions; the set I have reported was based on national prices and a second, slightly lower set was based on regional prices. My reasons for preferring national prices will be evident in the next few paragraphs of the text.

[66]Decennial census data as reported by the Chicago Public Library at http://www.chipublib.org/004chicago/timeline/population.html.

measured output in local prices. Easterlin warned that his "estimates at all dates do not allow for regional differences in the level or trend of the cost of living. Strictly speaking, therefore they relate only to money–income differences rather than real–income differences."[67] This is unobjectionable when there are no major price disparities between regions. Or when there are, they must reflect goods at different stages in the production process. If the Midwest is growing food for ultimate consumption in the East or abroad, then its price in the Midwest will necessarily be lower. So long as the regional accounts capture elsewhere the value of transporting and marketing the food, they remain accurate indicators of comparative real income.

Northwest agricultural prices were in fact significantly below those of the Northeast in 1840. A New York farmer, for instance, could sell a bushel of wheat for twice as much as an Illinois farmer. Yet not all the wheat grown in Illinois was destined for markets far away. Much of it was consumed right in the state. Because farm prices were so much lower in the North Central states, the estimates of per capita output for these states in Tables 4.1, 4.2, and 4.3 need upward revision. Any foodstuffs consumed within the region were not intermediate goods but final goods. They should be valued not at local prices but at average U.S. prices. Or restated, part of the differential we are observing between the two sections of the North should be corrected for regional differences in the dollar's purchasing power.

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[67]Easterlin, "Regional Income Trends, 1840–1950," p. 533. Engerman acknowledged this potential difficulty in "Some Economic Factors in Southern Backwardness in the Nineteenth Century," p. 281, n. 6.

Well after publication of his regional income relatives, Easterlin

constructed state-by-state estimates of total *agricultural* income in *both* state

prices and U.S. prices for 1840.[68] Table 4.4 reproduces these by region as well as

the resulting index of regional prices. The agricultural output of the East and West

North Central states together jumps by $29.1 million when evaluated at national

instead of local prices. Unfortunately, information on what proportion of the

North Central region's farm output was consumed at home is incomplete.

Historians once believed that the slave states depended upon food imports from

the Midwest.[69] Subsequent research showed that the South was pretty much

self–sufficient by 1840.[70] But this does not reveal how important for the Midwest

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[68]Easterlin, "Farm Production and Income in Old and New Areas at Mid–Century," in David C. Klingaman and Richard K. Vedder, eds., *Essays in Nineteenth–Century Economic History: The Old Northwest* (Athens: Ohio University Press, 1975).

[69]Douglass North, *The Economic Growth of the United States, 1790–1860* (New York: Prentice Hall, 1961).

[70]Albert Fishlow, "Antebellum Interregional Trade Reconsidered," *American Economic Review*, 54 (May 1964), 352–64; Robert William Fogel, "Discussion," *ibid.*, 377–89; Robert E. Gallman, "Self–Sufficiency in the Cotton Economy of the Antebellum South," *Agricultural History*, 44 (Jan 1970), 5–23; Raymond C. Battalio and John Kagel, "The Structure of Antebellum Southern Agriculture: South Carolina, A Case Study," *ibid.*, 25–37; Diane Lindstrom, "Southern Dependence upon Interregional Grain Supplies: A Review of the Trade Flows, 1840–1860," *ibid.*, 101–13; Stanley L. Engerman, "The Antebellum South: What Probably Was and What Should Have Been," *ibid.*, 127–42; William K. Hutchinson and Samuel H. Williamson, "The Self–Sufficiency of the Antebellum South: Estimates of the Food Supply," *Journal of Economic History*, 31 (Sep 1971), 591–612; Sam Bowers Hilliard, *Hog Meat and Hoecake: Food Supply in the Old South, 1840–1860* (Carbondale: Southern Illinois University Press, 1972); Ralph V. Anderson and Gallman, "Slaves as Fixed Capital: Slave Labor and Southern Economic Development," *American Historical Review*, 64 (Jun 1977), 24–46; Mark D. Schmitz, "Farm Interdependence in the Antebellum Sugar Sector," *Agricultural History*, 52 (Jan 1978), 93–103; Colleen M. Callahan and Hutchinson, "Antebellum Interregional Trade in Agricultural Goods: Preliminary Results," *Journal of Economic History*, 40 (Mar 1980), 25–31; Lawrence A. Herbst, "Discussion," *ibid.*, 43–4. The Fishlow and Fogel articles from *American Economic Review* are reprinted in Andreano, ed., *New Views on American Economic Development*, along with an additional "Postscript" from Fishlow and a further comment, "American Interregional Trade in the Nineteenth Century," from Fogel. All four 1970 contributions from *Agricultural History* are

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were agricultural exports, destined for either the South, the Northeast, or overseas.
Albert Fishlow roughly approximated Midwest exports to all destinations in 1839
at $26.7 million worth.[71] This represents about one quarter of the region's total
agricultural output. We therefore can say that the 1840 output of the Midwest was
underestimated by about 75 percent of the $29.1 million agricultural adjustment in
1840 dollars. Converting to 1860 dollars and to a per capita basis, that would raise
the areas 1840 income to $72 per person, greater than in either the South Atlantic
or East South Central states.[72]

    This revision is probably conservative, because it does not take into
account any regional disparities in non–agricultural prices nor the possibility that
Midwest exports include some non–agricultural merchandise.[73] The few regional
price indexes that cover more than farm products (none before 1850) indicate that

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reprinted in Parker, ed., *The Structure of the Cotton Economy of the Antebellum South.* These findings apply from 1840 forward, so they do not rule out significant trade in foodstuffs between the South and Midwest during the earlier period, which was more what Douglass North had in mind anyway.

[71]Fishlow, "Antebellum Interregional Trade Reconsidered," 360. This adds $11.8 million of exports to the Northeast and $14.9 million of exports to the South, both evaluated at local prices. Parts of both amounts were destined for re–export. Fishlow's prime data source was A[lbert]. L[udwig]. Kohlmeier, *The Old Northwest as the Keystone of the Arch of American Federal Union: A Study in Commerce and Politics* (Bloomington: Principia Press, 1938).

[72]75 percent of $29.1 million is $21.8. Dividing by .94, Gallman's GNP deflator for 1839, "Gross National Product in the United States, 1834–1909," p. 26, yields $23.2 million in 1860 prices, and dividing again by the total population of the North Central states, 3.352 million, yields an underestimate of $6.92 per person.

[73]We can make an upper–bound adjustment that evaluates the Midwest's entire agricultural output at national prices, and then regional income rises to $74, the same as the South overall. This $9.20 increase results from $29.1 million divided by .94, as in preceding footnote, and divided again by 3.352 million.

midwestern prices were generally lower than elsewhere.[74] Of course, the other

regions require corrections as well. But those for the South are minor, because its

regional prices were much closer to national averages and because a larger

proportion of its agricultural output was exported.[75] Those for the Northeast,

where agriculture was least important, would lower its 1840 income—at most by

$6 to $123—further narrowing its differential with the Midwest.[76] Easterlin

unfortunately did not construct any price adjustments for 1860, but if prices in the

North Central states were similarly below the national level, our minimum

correction would raise their 1860 output per person—which Cohn has already

adjusted upward by 20 percent—another 11 percent of the original value in Table

4.1. On the other hand, improvements in transportation over the intervening two

decades would have tended to dampen regional price differences.[77]

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[74]Phillip R. P. Coelho and James F. Shepherd, "Differences in Regional Prices: The United States, 1851–1880," *Journal of Economic History*, 34 (Sep 1974), 551–91; Robert A. Margo, *Wages and Labor Markets in the United States, 1820 to 1860* (Chicago: University of Chicago Press, 2000), p. 113.

[75]The maximum correction for the South, assuming no exports, would be $10.4 million divided by .94 and divided again by 6.368 million inhabitants, or $1.74 per person. This ignores Texas which is not included in Table 4.4. While having a small impact on southern income overall, such an adjustment would noticeably raise the per capita income of the East South Central states relative to the South Atlantic states.

[76]Making the assumption that all Northeastern agricultural output was consumed in the region—reasonable for the New England states but not necessarily for the Middle Atlantic—take $39.6 million, divide by .94, and divide again by 7.309 million inhabitants. That yields a reduction of $5.76.

[77]The evidence on the behavior of regional price differentials over the antebellum period is scanty. Thomas Senior Berry, *Western Prices Before 1861: A Study of the Cincinnati Market* (Cambridge, MA: Harvard University Press, 1943), pp. 121–9, 564, suggests that falling transportation costs did bring some convergence. On the other hand, Coelho and Shepherd, "Differences in Regional Prices," 583, reject the conclusion "that price–level differentials among regions narrowed," but their study only goes back to 1851. Margo, *Wages and Labor Markets in the United States, 1820*

Although the cumulative effect of these various corrections is to reveal that in either 1840 or 1860 people in the Midwest were probably richer on average than in South's two eastern sections, we are still left with what labor economist Robert A. Margo has dubbed the "Easterlin paradox." Per capita income remains higher in the Northeast than the old Northwest. Yet workers and farmers moved in the opposite direction. Several economists have offered resolutions of this paradox, and they all hinge on migration of individuals from the lower strata of the eastern income distribution. Average total income is not the same as average farm income or average real wages. Although manufacturing was quite productive in the New England states, agricultural productivity was 30 percent below the level of the East North Central states in 1860. The Easterlin study we just reviewed hence found that farmers relocating west enhanced their incomes.[78] And Margo has recently documented that competition from farm incomes made the

_to 1860_, pp. 95–113, finds definite convergence in regional real wages, but that is only one part of the story. Donghyu Yang, "Agricultural Productivity in the Northern United States, 1860," in Fogel and Engerman, eds., _Without Consent or Contract—Markets and Production: Technical Papers_, v. 1., p. 308, estimates that—for agricultural prices alone—the northeastern index had fallen from Easterlin's value of 117 for 1840 to 110.7 for 1860, while the midwestern index had risen from Easterlin's value of 78 for 1840 to 89.3 for 1860. This is a considerable reduction in the gap between the regions of the North over the two decades, yet with a significant distance remaining. Unfortunately, Yang was unable to calculate a comparable figure for the South. One factor that might indicate convergence of purchasing–power in the Midwest relative to the South is the claim of Huertas, in "Damnifying Growth in the Antebellum South," 96–7, that southern terms of trade improved from 1840 to 1860.

[78]Easterlin, "Farm Production and Income in Old and New Areas at Mid–Century," p. 110. See also Barbara J. McCutcheon, "An Exploration into the Causes of Growth of Per Capita Income in the North, 1840–1860," in Fogel, Galantine, and Manning, eds., _Without Consent or Contract: Evidence and Methods_, pp. 485–96.

real wages of Midwest workers higher as well.[79] Westward migration, in both North and South, usually improved the lot of those who moved.

These population shifts, moreover, help unveil another reason that average income was higher in the Northeast, despite higher real wages and farm incomes in the old Northwest. At the same time that settlers headed west, immigrants were pouring in from abroad. Over a third of the foreign born settled in the west, but the majority stayed in the east.[80] They tended to be younger males in their prime earning age, often with few dependents. Even among natives, fertility was lower in the Northeast than in the rest of the nation. As a result, the northeastern labor–force participation rate was higher than the midwestern rate throughout the two decades before the Civil War.[81] More people working and a smaller proportion of dependent children will automatically lift average income. A similar factor, albeit in the reverse geographical direction, contributed to the high output of the Southwest compared with the remainder of South, since slaves sent west tended to favor more young adults.[82]

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[79]Margo, "Regional Wage Gaps and the Settlement of the Midwest," *Explorations in Economic History*, 36 (Apr 1999), 128–43; Margo, *Wages and Labor Markets in the United States, 1820 to 1860*, pp. 95–113. This resolution was earlier suggested in Philip R. P. Coelho and James F. Shepherd, "Regional Differences in Real Wages: The United States, 1851–1880," *Explorations in Economic History*, 13 (Apr 1976), 203–30.

[80]*Historical Statistics of the United States*, pt. 1, series A 172–194.

[81]Fogel, *Without Consent or Contract*, pp. 86–7; McCutcheon, "An Exploration into the Causes of Growth of Per Capita Income in the North, 1840–1860," pp. 486, 491.

[82]Alfred H. Conrad and John R. Meyer, *The Economics of Slavery and Other Studies in Econometric History* (Chicago: Aldine, 1964), p. 72; Gunderson, "Southern Ante–bellum Income Reconsidered," 155. According to Conrad and Meyer, for instance, slaves aged 20–29 in 1860 represented 18.9 percent of the slave population in the western South as compared with 16.5 percent in the eastern South.

Migration patterns, finally, provide additional, independent evidence that the South's peculiar institution imposed negative externalities on non–slaveholders. Free laborers do not generally move in large numbers from economies where wages are high to where wages are lower. Foreign immigrants generally shunned the South, and the migration rate into the Midwest was four times that into the Southwest. As Table 4.5 reveals, even white Southerners were leaving the slave states to settle in the free states in far greater numbers than the reverse, and the net outmigration may have been higher than 100,000 between 1840 and 1860.[83] Fogel and others have attributed this pattern to preferences about climate and "latitude–specific investments in seeds and human capital"

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[83][U.S. Census Office, 1860 Census], *Population of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1864), pp. 616–9; Peter D. McClelland and Richard J. Zeckhauser, *Demographic Dimensions of the New Republic: American Interregional Migration, Vital Statistics, and Manumissions, 1800–1860* (Cambridge, UK: Cambridge University Press, 1982), pp. 7, 51–2; Donald Schaefer, "U.S. Migration, 1850–59," in Thomas Weiss and Schaefer, eds., *American Economic Development in Historical Perspective* (Stanford, CA: Stanford University Press, 1994), p. 63. The 1860 Census reports that 350,665 persons born in the free states lived in the slave states, whereas 709,718 born in the slave states lived in the free states. The difference is 359,053, but we do not know how many of those moved within the previous two decades. Because of imperfections in the census data, McClelland–Zeckhauser and Schaefer have refined them with sophisticated, computer simulations of U.S. demographics and migration. McClelland and Zeckhauser estimate that net migration from the South to the North between 1840 and 1860 was at least 200,000. Schaefer believes this figure is too high because it does not adjust for differences between an foreign immigrants point of entry and final settlement. His alternative estimate, however, is only for the one decade prior to 1860, during which 130,000 on net left the South. This includes those who moved to California and the Far West, while the McClelland–Zeckhauser estimate deducts any such migration. Unfortunately, both estimates are flawed for our purposes because both count as part of the Northwest two major slaves states, Kentucky and Missouri. For a more skeptical appraisal of net South to North migration, see Richard H. Steckel, "Household Migration and Rural Settlement in the United States, 1850–1860," *Explorations in Economic History*, 26 (Apr 1989), 190–218, and Steckel, "Growth and Development in the Antebellum South: Old Debates and New Directions," in Lou Ferleger, ed., *Agriculture and National Development: Views on the Nineteenth Century* (Ames: Iowa State University Press, 1990), pp. 177–80.

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which "induced migrant farmers to move along east–west lines."[84] Real wages

were, of course, higher in the Southwest than the Southeast, just as they were

higher in the Midwest than in the Northeast. But Margo's wage data demonstrate

that as early as "the 1830s, the wage gap" between the South and North overall

"turned markedly in favor of the North. The gap continued to widen in the 1840s

before narrowing somewhat in the 1830s [sic, 1850s], although still remaining

positive."[85] Whatever role played by their preferences or skills, workers from

abroad successfully eluded the lower wages of the slave states and secured the

higher wages of the free states. This implies that the South's peculiar institution

did in fact discourage immigration—not, as some traditional historians proposed,

because immigrants found the institution repulsive *per se* or because it degraded

labor—but through its impact on economic opportunity for non–slaveholders.[86]

IV

Let us recapitulate. The Engerman estimates of per capita income by

region in Table 4.1 suffer from at least six weaknesses that hinder precise

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[84]Donghyu Yang and Gerald Friedman, "Some Economic Aspects of the Southern Interregional Migration, 1850–1860," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract: Evidence and Methods*, p. 262. Also see James A. Dunlevy, "Regional Preferences and Migrant Settlement: On the Avoidance of the South by Nineteenth–Century Immigrants," in Paul Uselding, ed., *Research in Economic History: A Research Annual*, v. 8 (Greenwich, CT: JAI Press, 1983); Richard H. Steckel, "The Economic Foundations of East–West Migration during the 19th Century," *Explorations in Economic History*, 20 (1983) 14–36; Fogel, *Without Consent or Contract*, p. 92.

[85]Margo, *Wages and Labor Markets in the United States, 1820 to 1860*, p. 108. Margo thereby corroborates at least the direction of Helper's crude observation on relative regional wages in *The Impending Crisis of the South*, p. 381.

[86]A well argued challenge to the traditional arguments about slavery and immigrants is William L. Miller, "Slavery and the Population of the South," *Southern Economic Journal*, 28 (Jul 1961), 46–54.

assessment of the economic differences between slave states and free states. (1) *Delineation of regions*: the three slaves states of Delaware, Maryland, and Missouri are allotted to the North rather than the South. (2) *Upward bias in the West South Central states*: this results primarily from assigning Texas an inexplicably high income of $220 per person in both 1840 and 1860. (3) *Unrepresentative cotton crop of 1860*: southern output is thus exaggerated, but only slightly, in that year. (4) *Extrapolation of income from service sectors*: this causes 1860 output in the Midwest to be understated, while in the Northeast and South to be overstated, and probably imparts similar biases to 1840 output as well. (5) *Use of local rather than national prices*: Midwest real income is therefore significantly underestimated for 1840, while the South's is somewhat underestimated and the Northeast's overestimated—with less certain and severe distortions for 1860. (6) *Calculations for free populations*: these were based on annual consumption of $20 per slave, which is undoubtedly too low.

Table 4.6 is a revision of Table 4.1 that incorporates only the most important and cautious corrections. With respect to the South, I have adjusted only for Texas, by assigning it the same output per person as the other West South Central states in both 1840 and 1860. Further adjusting for regional price differences would have raised the South's income slightly in both years, but correcting Easterlin's estimates of non–commodity output would have lowered it, probably in both years, whereas correcting for the cotton crop of 1860 would have dropped it marginally in that year alone. Rather than pile such minor and opposite alterations on top of each other, I have decided to leave Easterlin's estimates for the South Atlantic and East South Central states untouched. The only serious

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misrepresentation that may endure applies not to the South overall but to its subregions. Income in the South Atlantic region is probably too high relative to the East South Central region.

With respect to the North, I have adjusted for regional price differences in 1840 but not in 1860. On the other hand, I have adjusted for non–commodity output in 1860 but not in 1840. These corrections raise income per capita in the Midwest and lower it in the Northeast for both years, while having little effect on the combined northern averages. Some of the adjustments, for either the North or South, would also cause negligible changes in the national averages, changes which I have not bothered to register—another reason to keep my revisions to a minimum. Nor was I able to shift the North's three slave states into the South, because much of the state-by-state data are unavailable. Finally, in order to re–compute the per capita income of each region's free population from these revised figures for total population, I have set slave consumption at the commonly accepted average of $30 per year.

The broad outlines of Tables 4.5 and 4.1 differ little. The average Southerner remains poorer than the average Northerner in the decades prior to the Civil War, despite a flood of immigrants that caused the North's population to grow twice as fast. "[T]he Southern economic achievement is diminished" even further, emphasizes Gallman, "[o]nce one appreciates that the level of income depended heavily on the compulsion of slavery—a forced–draft economy"[87] The South's growth rate is still slightly higher than average, but the attention Fogel

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[87]Gallman, "Slavery and Southern Economic Growth," 1019.

and Engerman gave the growth of per capita income rather than the level is a misleading diversion. Nor is the rate high enough to conclude that the free and slave states were converging, especially once we consider each of the South's subregions.

The critical differences between the two tables are in the details. The North Central states now enjoy a per capita income that is comfortably above the South, outside of the West South Central states. Those richly endowed, resource–intensive states, in turn, generate less output per person than the Northeast states in 1860, although their output remains implausibly high in 1840 (see Appendix B). And dropping black slaves out no longer lifts southern income above northern in either year. The fact that the slave states can only barely match the free states in output per person if the lower–third of the South's population is ignored indicates not only significant deadweight loss, but also a deadweight loss that spills over onto the South's free, non–slaveholders.

So Table 4.6 provides more credible regional particulars within the antebellum economy, yet I make no grandiose claims about its finality or precision. Although it offers what I believe are some modest improvements, no vital issue depends upon any of the changes. Either the Easterlin–Engerman estimates or my revisions, correctly interpreted, confirm the conventional economic portrait of the Old South. It was unquestionably and substantially poorer than the North, and the most likely culprit was the peculiar institution.

TABLE 4.1
Engerman's Estimates of Per Capita Income by Region
for 1840 and 1860 (1860 Prices)

	TOTAL POPULATION			FREE POPULATION		
	1840	1860	Rate of Growth	1840	1860	Rate of Growth
National Average	$96	$128	1.4%	$109	$144	1.4%
North:						
Northeast	109	141	1.3	110	142	1.3
North Central	129	181	1.7	130	183	1.7
South:	65	89	1.6	66	90	1.6
South Atlantic	74	103	1.7	105	150	1.8
East South Central	66	84	1.2	96	124	1.3
West South Central	69	89	1.3	92	124	1.5
	151	184	1.0	238	274	0.7

(continued)

TABLE 4.1
(continued)

Regions: *Northeast*, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland; *North Central*, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota (1860 only), Iowa, Nebraska (1860 only), Kansas (1860 only), and Missouri; *South Atlantic*, Virginia (including West Virginia), North Carolina, South Carolina, Georgia, and Florida; *East South Central*, Kentucky, Tennessee, Alabama, Mississippi; *West South Central*, Arkansas, Louisiana, and Texas.

Sources: Stanley L. Engerman, "The Effects of Slavery upon the Economy: A Review of the Recent Debate," *Explorations in Entrepreneurial History*, 2nd ser., 4 (Winter 1967), 71–97; Robert William Fogel and Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), p. 248; final column, my calculations from previous two columns according to the following formula: $\left(1860 \text{ income}/1840 \text{ income}\right)^{1/20} - 1$

TABLE 4.2
Estimates of Regional Per Capita Income
as Percentage of United States Average

	EASTERLIN		ENGERMAN	
	1840	1860	1840	1860
United States	100	100	100	100
North			**114**	**110**
Northeast	**135**	**139**	134	141
New England	132	143		
Middle Atlantic	136	137		
North Central	**68**	**68**	68	70
East North Central	67	69		
West North Central	75	66		
South	**76**	**72**	**77**	**80**
South Atlantic	70	65	69	66
East South Central	73	68	72	70
West South Central	144	115	157	144

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TABLE 4.2
(continued)

Regions: *New England*, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut; *Middle Atlantic*: New York, New Jersey, Pennsylvania, Delaware, and Maryland; *East North Central*, Ohio, Indiana, Illinois, Michigan, and Wisconsin; *West North Central*, Minnesota (1860 only), Iowa, Nebraska (1860 only), Kansas (1860 only), and Missouri; *South Atlantic*, same as Table 4.1; *East South Central*, same as Table 4.1; *West South Central*, same as Table 4.1 except Texas is excluded from first two columns.

Sources: Richard A. Easterlin, "Regional Income Trends, 1840–1950," in Seymour E. Harris, ed., *American Economic History* (New York: McGraw–Hill, 1961), p. 528; Engerman estimates are my calculations based on Table 4.1.

TABLE 4.3
Estimates of Per Capita Income by Region
for Free Population in 1840 and 1860 (1860 Prices)

	$30/SLAVE		$40/SLAVE	
	1840	1860	1840	1860
National Average	$107	$142	$106	$141
North	110	142	110	142
Northeast	130	182	130	182
North Central	66	90	65	90
South	99	145	94	139
South Atlantic	90	118	83	112
East South Central	87	120	82	114
West South Central	231	270	225	267

Regions: Same as Table 4.1.

Sources: My calculations based on Total Population in Table 4.1. In each region, per capita income for the total population was multiplied by the region's population. From the resulting total income figures I subtracted either $30 or $40 times the region's slave population. I then divided by the region's free population, which is the difference between its total and slave populations. Total population figures are from U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series A 172–194. Slave population figures are from Bureau of the Census, Department of Commerce, *Negro Population, 1790–1915* (Washington: Government Printing Office, 1918), p. 57.

TABLE 4.4
Easterlin's Adjustments to Agricultural Income
by Region for 1840 (1840 Prices)

	AGRICULTURAL INCOME (in millions)			Implicit Regional Price Index
	At Local Prices	At U.S. Averages	Adjust-ment	
United States	$663.4	$663.4	$0.0	100
Northeast	**269.7**	**230.1**	**−39.6**	**117**
New England	71.5	62.6	−8.9	114
Middle Atlantic	198.2	167.5	−30.7	118
North Central	**103.6**	**132.7**	**+29.1**	**78**
East North Central	88.6	112.3	+23.7	79
West North Central	15.0	20.4	+5.4	73
South	**290.2**	**300.6**	**+10.4**	**97**
South Atlantic	144.2	136.6	−7.6	106
East South Central	117.2	134.2	+17.0	87
West South Central	28.8	29.8	+1.0	97

Details may not add to totals because of rounding.

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TABLE 4.4
(continued)

Regions: Same as Table 4.2

Source: Richard A. Easterlin, "Farm Production and Income in Old and New Areas at Mid–Century," in David C. Klingaman and Richard K. Vedder, eds., *Essays in Nineteenth–Century Economic History: The Old Northwest* (Athens: Ohio University Press, 1975), p. 103, Table A–1.

TABLE 4.5
**Migration Between Free and Slave States
as of 1860**

FREE STATE RESIDENTS

State	Born In Slave States
Maine	431
New Hampshire	279
Vermont	292
Massachusetts	4,097
Rhode Island	1,061
Connecticut	1,727
New York	15,356
New Jersey	5,938
Pennsylvania	49,683
Ohio	134,210
Indiana	161,203
Illinois	179,436
Michigan	5,768
Wisconsin	7,089
Minnesota	3,358
Iowa	54,731
Kansas	27,368
California	45,562
Oregon	12,129
Free State Total	**709,718**

(continued)

TABLE 4.5
(continued)

SLAVE STATE RESIDENTS

State	Born In Free States
Delaware	10,762
Maryland	25,282
Virginia	36,651
North Carolina	2,397
South Carolina	2,284
Georgia	6,335
Florida	2,010
Kentucky	41,162
Tennessee	12,478
Alabama	5,930
Mississippi	5,157
Missouri	153,288
Arkansas	11,049
Louisiana	14,193
Texas	21,687
Slave State Total	**350,665**

Source: [U.S. Census Office, 1860 Census], *Population of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1864), pp. 616–9.

TABLE 4.6
Revised Estimates of Per Capita Income by Region
for 1840 and 1860 (1860 Prices)

	TOTAL POPULATION			FREE POPULATION		
	1840	1860	Rate of Growth	1840	1860	Rate of Growth
National Average	$96	$128	1.4%	$107	$142	1.4%
North:	107	144	1.3	108	145	1.5
Northeast	123	173	1.5	124	174	1.7
North Central	72	108	2.0	73	109	2.0
South:	73	100	1.6	98	140	1.8
South Atlantic	66	84	1.2	90	118	1.4
East South Central	69	89	1.3	87	120	1.6
West South Central	140	165	0.8	213	240	0.6

Regions: Same as Table 4.1. Source: Table 4.1 and my calculations as explained in text.

Chapter 5
Slavery and Returns to Scale

I

The authors of *Time on the Cross* not only denied that the peculiar institution had any deleterious *macro*economic impacts on the southern economy overall. They went on to make sweeping assertions about the *micro*economic productivity of the agricultural firm that utilized slave labor, the southern plantation. Specifically, Robert Fogel and Stanley Engerman concluded that "[s]outhern agriculture as a whole was about 35 percent more efficient than northern agriculture in 1860." In other words, the South could have produced 35 percent more than the North with the North's factors of production. Part of that was because even "southern free farms were 9 percent more efficient" when "[c]ompared with northern farms." Most of the advantage was, however, due to slavery. They rated "southern farms using slave labor . . . 28 percent more efficient than southern free farms" and "40 percent more efficient" than northern farms.[1] And what accounted for these stunning differences? The key factor, in Fogel and Engerman's opinion, was what economists call "economies of scale."

Although economies of scale may seem like one of those technicalities that could only interest economists, the concept actually sits at the intersection of many other questions relating not only to slavery's efficiency but also to the

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[1]Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 1, *The Economics of American Negro Slavery* (Boston: Little, Brown, 1974), p. 192. There was some subsequent refinement of the precise percentages, as we will observe further below, but Fogel and Engerman never altered the basic contours.

nature of rural society in the Old South. For if slavery did make large planters more productive, what does that reveal about the region's free white farmers? Did field hands work longer hours than free laborers or more intensely per hour? Gavin Wright and other scholars who reject scale economies offer unique descriptions of the market's role in antebellum southern agriculture. The concept even profoundly affects our understanding of the drastic economic changes wrought by the Civil War. What we will discover is that the apparent superiority of large plantations, after all is said and done, is simply another manifestation of slavery's deadweight loss.

Why do large firms exist at all? Why does the marketplace not consist exclusively of atomized, sole proprietors trading goods and services with each other? The obvious answer is that sometimes bigger firms reduce costs, and they therefore can sell their products at a lower price than can smaller firms. But how far firms can bring down costs and how big they can get varies considerably across industries and over time. Changing technology and myriad other ingredients determine what is the optimum size for a business. In some cases, such as florists, barbershops, and dentists, the optimum size seems fairly small. You rarely encounter large chains or factories with thousands of employees offering these products. As such firms get beyond a certain magnitude, they apparently experience *diseconomies of scale*, meaning their average cost per unit of output rises as firm size rises. In other cases, for instance oil companies and auto manufactures, the optimum size is enormous. These are industries that exhibit *economies of scale*, because average cost falls as the firm gets larger. Finally, there are cases where the optimum size occupies a broad spectrum.

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Among restaurants, small family–owned and operated establishments survive amidst the largest eating chains. This is a type of enterprise where unit cost remains roughly constant from small to large firms.[2]

The definitions should make clear that growing sugar and rice must have enjoyed economies of scale—not just in the antebellum United States but in the Caribbean and Brazil as well. Production of those staples was mostly confined to large plantations worked by many slaves; small farmers never successfully penetrated those markets.[3] The definitions likewise make it probable that tobacco cultivation, like general farming, eventually ran up against diseconomies of scale.[4] Although both small farms and plantations engaged in these types of agriculture, the plantations rarely exceeded a size of 50 slaves.[5] But throughout the South, up until the Civil War, cotton farmers owning no slaves coexisted with plantations that ranged from small through middling to very large. This undisputed fact strongly implies that raising cotton was subject to constant

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[2]Definitions for economies and diseconomies of scale are standard fare in economics texts. My understanding of the firm owes much to R[onald] H. Coase's classic collection, *The Firm, the Market, and the Law* (Chicago: University of Chicago, 1988).

[3]Mark D. Schmitz verifies these economies for U.S. sugar cultivation in "Economies of Scale and Farm Size in the Antebellum Sugar Sector," *Journal of Economic History*, 37 (Dec 1977), 959–80.

[4]Fogel and Engerman concede this point with respect to general farming and admit it is likely with respect to tobacco in *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), p. 145, and in "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," *American Economic Review*, 67 (Jun 1977), 292–3. However, James R. Irwin, "Exploring the Affinity of Wheat and Slavery in the Virginia Piedmont," *Explorations in Economic History*, 25 (Jul 1988), 295–322, observes that, in the Virginia Piedmont, free farmers grew hardly any wheat, while slave plantations grew a lot, which suggests some economies of scale for that crop.

[5]Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington: Carnegie Institution, 1933), v. 1, p. 529–33.

average costs as farm size increased. It creates a *prima facia* case against any economies of scale.[6]

Getting around this *prima facia* case requires some fancy economic footwork. The original question tackled by economic historians was whether slavery was profitable at all. Having helped to demonstrate that the return on slaves was comparable to other antebellum investments, Fogel and Engerman were now further asserting that it was actually higher than what free farmers earned, North and South. Yet if economies of scale existed for cotton production, why were small cotton farmers not driven into bankruptcy? Why did large plantations not come to dominate the landscape, as they did wherever else they benefited from economies of scale? Fogel and Engerman in essence were second guessing a market outcome that had endured for decades. They had to demonstrate a knowledge of relative scarcities and technological possibilities that somehow evaded incorporation into actual prices at the time. They also had to offer some plausible explanation for the persistence of irrationality or inefficiency among the market participants themselves. This was a tall order indeed, and it is unsurprising that many critics of *Time on the Cross* remained unconvinced.

The debate over economies of scale went through three rounds. Fogel and Engerman opened the first round with a 1971 article in *Explorations in Economic*

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[6]For a formal defense of the survivor principle as the proper way to discern economies of scale, see George J. Stigler, "The Economies of Scale," *Journal of Law and Economics*, 1 (Oct 1958), 54–71, reprinted in Stigler, *The Organization of Industry* (Homewood, IL: Richard D. Irwin, 1968). Stigler traces the principle back to the writings of John Stuart Mill.

History.[7] Relying on the published volumes of the 1860 Census, they were initially surprised to discover that southern agriculture was more productive than northern, and they attributed that finding to the probable fact that slaves worked more hours per day and days per year. By the time they came to write *Time on the Cross*, Fogel and Engerman had refined and beefed up their productivity measures with additional information from the Parker–Gallman sample of 5000 farms in 11 southern states, recorded in the manuscript schedules of the 1860 Census. The superiority of southern agriculture, if anything, seemed more pronounced, and the authors of *Time on the Cross* no longer credited it to slaves putting in more hours. They now believed that:

> The advantage of plantations, at least that part which has been measured thus far, was due to the combination of superior management of planters and the superior quality of black labor. . . . How much of the success of the effort was due to the management, and how much to the responsiveness of workers is an imperative question, but its resolution lies beyond the range of current techniques and available data.[8]

This conclusion came in for a withering barrage of criticism. Thomas L. Haskell offered a popular but economically astute challenge in the *New York*

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[7] Fogel and Engerman, "The Relative Efficiency of Slavery: A Comparison of Northern and Southern Agriculture in 1860," *Explorations in Economic History*, 8 (Spring 1971), 353–67. This article superseded Stanley L. Engerman's still earlier attempt to make North–South productivity comparisons: "Some Economic Factors in Southern Backwardness in the Nineteenth Century," in John F. Kain and John R. Meyer, eds., *Essays in Regional Economics* (Cambridge, MA: Harvard University Press, 1971), pp. 293–6.

[8] Fogel and Engerman, *Time on the Cross*, v. 1, p. 210. The actual derivation of the estimates is described in v. 2, pp. 126–49. Some missing details were finally revealed by Engerman and John F. Olson, "Basic Procedures for the Computation of Outputs and Inputs from the Parker–Gallman Sample, Including a Procedure for the Elimination of Defective Observations," in Fogel, Ralph A. Galantine, and Richard L. Manning, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Evidence and Methods* (New York: W. W. Norton, 1992), No. 24, pp. 205–9.

Review of Books. Two cliometricians, Paul A. David and Peter Temin, presented a more technical critique in the *Journal of Economic History*. And Gavin Wright developed an alternative perspective as part of a symposium on *Time on the Cross* within the pages of *Explorations in Economic History*.[9] The published symposium had itself been inspired by an unprecedented scholarly conference in October 1974 at the University of Rochester, devoted exclusively to *Time on the Cross*, and at which other unpublished criticisms had been aired. The articles of David/Temin and Wright would later find their way into the multi–authored appraisal of Fogel and Engerman's work, *Reckoning with Slavery*.[10] Almost the sole supporter coming to defend economies of scale was one of Fogel's students, Jacob Metzer, who published a journal article looking into the rational management and modern business practices of antebellum planters.[11]

Round two of the debate took place entirely in the *American Economic Review*. Fogel had penned a preliminary defense of *Time on the Cross*'s productivity measures there in 1975, but he and Engerman made an extensive

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[9]Thomas L. Haskell, "Were Slaves More Efficient? Some Doubts About 'Time on the Cross'," *New York Review of Books*, 21 (19 Sep 1974), 38–42; Paul A. David and Peter Temin, "Slavery: The Progressive Institution?" *Journal of Economic History*, 34 (Sep 1974), 739–83; Gavin Wright, "Slavery and the Cotton Boom," *Explorations in Economic History*, 12 (Oct 1975), 439–51.

[10]Paul A. David, *et. al.*, *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery* (New York: Oxford University Press, 1976).

[11]Jacob Metzer, "Rational Management, Modern Business Practices, and Economies of Scale in the Ante–Bellum Southern Plantations, " *Explorations in Economic History*, 12 (Apr 1975), 123–50, reprinted in Fogel and Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992). A less ambitious defense of Fogel and Engerman was Thomas M. Zepp, "On Returns to Scale and Input Substitutability in Slave Agriculture," *Explorations in Economic History*, 13 (Apr 1976), 165–78.

reply to their critics in the same journal two years later.[12] The only respect in which they backed down, as we observed in Chapter 1, was by altering their emphasis from the peculiar institution's rewards to its punishments. The superiority of slave plantations was now less the result, as Bertram Wyatt-Brown put it, of "upward striving workers who toiled so diligently and willingly" and of "the individual achievements of the slave 'entrepreneur'," responding to the master's positive incentives. Instead Fogel and Engerman spoke of a coercive "assembly–line type of pressure."[13] Not that this shift appeased many of the critics, except for Haskell.[14] Further volleys from David and Temin and from Wright, plus a more limited skirmish from Donald F. Schaefer and Mark D. Schmitz appeared in the *American Economic Review* in 1979.[15]

Fogel and Engerman kicked off round three in 1980 with still another *American Economic Review* article.[16] But this time few rejoinders appeared in

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[12]Fogel, "Three Phases of Cliometric Research on Slavery and its Aftermath," *American Economic Review*, 65 (May 1975), 37–46; Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 275–96. The latter article is reprinted in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1.

[13]Bertram Wyatt–Brown, "Slavery's Cross Resurrected—and Recast [review of Robert William Fogel, *Without Consent or Contract*]," *Reviews in American History*, 18 (Jun 1990), 190–3; Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 291.

[14]Haskell, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: A Reply to Fogel–Engerman," *American Economic Review*, 69 (Mar 1979), 206–7.

[15]Donald F. Schaefer and Mark D. Schmitz, "The Relative Efficiency of Slave Agriculture: A Comment," *ibid.*, 208–12; David and Temin, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Comment," *ibid.*, 213–8; Wright, "The Efficiency of Slavery: Another Interpretation," *ibid.*, 219–26.

[16]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," *ibid.*, 70 (Sep 1980), 672–90, reprinted in Fogel and Engerman, eds.,

print. Instead, the authors of *Time on the Cross* could count on some younger

academic champions—most notably James R. Irwin, Elizabeth B. Field, John F.

Olson, and Donghyu Yang—to reinforce their stand for economies of scale.[17] The

scattered dissents, co–authored primarily by either Schaefer and Schmitz or

Richard Grabowski and Carl Pasurka, tended to appear in pure economics

journals, maintained the discussion at a highly technical level, and made little

impact on historians generally.[18] And it is no wonder, because those

non–economists who had found Fogel and Engerman's original mathematical

paraphernalia daunting and intimidating had absolutely no chance in this third

round, with such esoteric concepts as transformation sets, non–parametric

statistics, transcendental logarithmic functions, Hicks elasticities of

complementarity, and stochastic production frontiers being freely bandied about.

Without Consent or Contract—Markets and Production: Technical Papers, v. 1. Since the reprinted version contains material not included in the original, all future citations refer to the expanded version.

[17]Irwin, "Exploring the Affinity of Wheat and Slavery in the Virginia Piedmont"; Elizabeth B. Field, "The Relative Efficiency of Slavery: A Translog Production Function Approach," *American Economic Review*, 78 (Jun 1988), 543–9; Field, "Free and Slave Labor in the Antebellum South: Perfect Substitutes or Distinct Inputs," *Review of Economics and Statistics*, 70 (Nov 1988), 654–9; John F. Olson, "Clock Time versus Real Time: A Comparison of the Lengths of the Northern and Southern Agricultural Work Years," in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1; Donghyu Yang, "Agricultural Productivity in the Northern United States, 1860," *ibid.* Olson and Yang were Fogel students, Irwin was an Engerman student, and Field a student of Robert E. Gallman.

[18]Schaefer and Schmitz, "Efficiency in Antebellum Southern Agriculture: A Covariance Approach," *Southern Economic Journal*, 49 (Jul 1982), 88–98; Schaefer, "The Effect of the 1850 Crop Year Upon Relative Productivity in the Antebellum Cotton South," *Journal of Economic History*, 43 (Dec 1983), 851–65; Richard Grabowski and Carl Pasurka, "The Relative Technical Efficiency of Northern and Southern U.S. Farms in 1860," *Southern Economic Journal*, 54 (Jan 1988), 598–614; "The Relative Efficiency of Slave Agriculture: An Application of a Stochastic Production Frontier," *Applied Economics*, 21 (May 1989), 587–95. See also the comment by Richard A. Hofler and Sherman T. Folland, "The Relative Efficiency of Slave Agriculture: A Comment," *ibid.*, 23 (May 1991), 861–8; and Grabowski and Pasurka's reply, *ibid.*, 869–70.

Thus, when Fogel wrote *Without Consent or Contract*, the case for economies of scale was reiterated with elaborations in the supporting volumes. And that is where the debate has rested since then, fairly quiescent.[19]

Before plunging into the arcane intricacies of this controversy, it behooves us to specify the points at issue. What is *not* in dispute is that slavery forced blacks on the plantation to work more than they would have if free. Chapter 3 has already discussed how bondage acted as a tax on leisure and thereby artificially stimulated the South's output of cotton and other crops. One of the most obvious ways it did so was by increasing the labor–force participation rate of blacks, with women and youngsters working in the fields. Fogel and Engerman, however, adjusted their labor measure for this increase so that it would not show up as greater productivity. Nor do many dispute—at least any longer—that slavery also forced prime male hands to work harder than otherwise, although one of the issues is whether this took the form of working more hours or working more intensely per hour. The authors of *Time on the Cross* came to believe that slaves actually put in fewer hours per year than northern farmers. But the "slaves employed on medium and large plantations worked about 72 percent more intensely per hour than free farmers," with the result that they "produced as much output in roughly 35 minutes as a free farmer did in a full hour."[20]

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[19]Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989); Fogel, Galantine, Manning, eds., *Without Consent or Contract—Evidence and Methods*, Nos. 24–31, pp. 205–39.

[20]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 293.

Fogel and Engerman's allegation of scale economies in cotton cultivation contains a further implication: slaves worked best when enough of them worked together in a gang. "The gang played a role comparable to the factory system or, at a later date, the assembly line, in regulating the pace of labor," they wrote. "It was, in other words, an early device for labor speedup."[21] The minimum threshold for the gang system was allegedly sixteen slaves, and when that threshold was crossed, output jumped by about 40 percent. This is where the distinction between economies of scale and merely making slaves work harder becomes critical. If such economies were indeed operative, free farm laborers, too, could have earned higher wages by joining gangs on large plantations. *Time on the Cross* fully acknowledged this theoretical consequence, putting the potential income gain at 44 percent, and one of the supplemental volumes to *Without Consent or Contract* suggests it might have been as high as 98 percent.[22]

It does not take sophisticated econometrics to figure out that a free farmer might have made more money by toiling a lot harder. Even the farmers themselves knew that, but they apparently preferred leisure to extra income. The significance of economies of scale is that these same farmers could also have earned more by combining their small family farms into larger holdings and

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[21]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," p. 294. Fogel and Engerman's analogy between the plantation gang and the factory assembly line was concurrently put forward by R. Keith Aufhauser, "Slavery and Scientific Management," *Journal of Economic History*, 33 (Dec 1973), 811–24.

[22]Fogel and Engerman, *Time on the Cross*, v. 2, p. 160; Mark M. Hopkins and N. Scott Cardell, "A Correction to the Computation in *Time on the Cross* of the Value of Freedom at Low–Income Levels," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, p. 381.

working together. Nor would they necessarily have had to work any more intensely to capture these gains if the scale effect was truly distinct from the input effect. The farmers could alternately increase labor input with additional workers. Yet for some reason, not only cotton farmers in the South but free laborers generally spurned these monetary advantages. Improved wages in urban factories were sufficient to pull labor off the farms and across the oceans, but a similar incentive was unable to entice free workers into plantation gangs. Those who fully accept Fogel and Engerman's analogy between the factory system and the cotton field must explain why.

<div align="center">II</div>

Fogel and Engerman used what is known as the "geometric index of total factor productivity" to measure economies of scale. At first glance, this may seem an odd choice. Economies of scale emerge from a relationship between *monetary* costs and revenue. Bigger firms can make greater profits when such economies are present. The geometric index of total factor productivity, on the other hand, attempts to measure *physical* productivity. Can "a single large farm using given quantities of inputs . . . produce more output than a group of small farms which together used the same quantity of inputs."[23] Only with a physical measure, however, could Fogel and Engerman hope to detect alleged efficiencies that did not register in market outcomes.

A firm's physical output and monetary earnings, of course, are interconnected. When doubling the physical quantities of all inputs more than

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[23]Fogel and Engerman, *Time on the Cross*, v. 1, p. 192.

doubles the physical quantity of output, economists call this *increasing returns to scale*. When doubling all inputs (or increasing them by some other factor) exactly doubles output (or increases it by the same factor), that is known as *constant returns to scale*. And when doubling all inputs less than doubles output, we have *decreasing returns to scale*. Increasing returns to scale sounds much like economies of scale, and the one so frequently leads to the other, that the two terms are often used interchangeably. Likewise with decreasing returns to scale and diseconomies of scale. But the two sets of terms are not synonymous. Returns to scale tell us about a firm's physical productivity, whereas economies of scale tell us about its monetary costs. Physical productivity and monetary profitability are not *always* identical.

What we can say is that increasing returns (the physical concept) will generate economies of scale (the monetary concept) if factor prices stay the same. (The converse—that scale economies imply increasing returns—is not necessarily true, as we will observe below.) The simplest way to measure physical returns is with a *partial* index of factor productivity, which is the ratio of total output to only one input. For instance, we could focus exclusively on labor by determining the amount of cotton produced per worker on both large plantations and small farms. The drawback of such a partial index is that the labor on large plantations could produce more cotton just as easily because of additional capital or better land as because of returns to scale. So we need an index that somehow combines all factor inputs.

The geometric index of *total* factor productivity does that. Fogel and Engerman calculated this index, *G*, using the following formula:

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$$(5.1) \qquad\qquad G = \frac{Q}{L^l K^k R^r}$$

Q is output, L is the input of labor, K is the input of capital, and R is the input of land. Ideally outputs and all inputs are measured in physical units: say, cotton bales for Q, hours for L, the number of agricultural implements for K, and acres for R. G is our resulting index number, while the exponential weights—l, k, and r—are constants representing the shares of each input in the value of output.

Economists first developed the geometric index to investigate economic growth over time, either for a well–defined industry or an entire economy. G was calculated for two or more dates, and any expansion of output that could not be explained by an increase in one of the inputs would show up as an increase in G. This residual change was usually attributed to technological innovation.[24] The geometric index is not the only possible measure of technological change. There are others—including an arithmetic index, that adds rather than multiplies the inputs.[25] All of these measures yield slightly different answers and none is unambiguously superior to the others. Nowadays, such growth accountancy has fallen out of favor, both for its simplistic assumptions and its implausible

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[24]Evsey D. Domar, "On the Measurement of Technological Change," *Economic Journal*, 71 (Dec 1961), 709–29, was one of the first formal presentations of geometric index of total factor productivity, although as Domar pointed out, the investigations of previous economists had already used this measure implicitly.

[25]Domar, "On Total Productivity and All That," *Journal of Political Economy*, 70 (Dec 1962), 597–608, explores the arithmetic index of total factor productivity. Domar's statement on p. 599 applies as strongly to the geometric index: "However tempting, it would be just as well not to treat the Index as a measure of efficiency, or even as an approximation to it . . ."

conclusions.[26] Yet eventually the geometric index was used to compare productivity at one point in time between countries, between economic sectors, or between firms.

The authors of *Time on the Cross* made two sets of comparisons. First, they computed separate G's for the North and South. Their southern data, however, were far more detailed. Northern productivity was derived from macro–aggregates found within the published volumes of the 1860 Census—basically the same source used to derive the national and regional income estimates we discussed in Chapter 4. Fogel and Engerman also employed southern census aggregates for their initial North–South comparisons, but they were able to refine these further with micro–information on individual southern farms (albeit of more limited geographical coverage) from the Parker–Gallman sample. This permitted them to compute a second set of G's for classes of farms within the South that varied in number of slaves or in location. Both sets of results appear in Table 5.1 expressed in the form of index numbers, with the average G of all northern farms set at 100.

Although all the variables in a geometric index, Q, L, K, and R, ought to be measured in physical units, this is usually not even possible for a single firm, much less an entire economy. Factors of production are heterogeneous, often with no commensurable physical units for each of the three broad input categories. The hours worked by all laborers could be added together, but that would ignore

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[26]See John Cornwall's entry on "Total Factor Productivity," in the prestigious reference, John Eatwell, Murray Milgate, and Peter Newman, eds., *The New Palgrave: A Dictionary of Economics* (London: Macmillan Press, 1987), v. 4, pp. 660–2.

differences between unskilled and managerial labor, between the field work of men and of women, and other possible quality dimensions. This difficulty is even less tractable for capital goods, which include such disparate items as hoes and cotton gins. We could expand the number of inputs to cover every single type of labor, capital good, and land, so that the denominator of equation 5.1 becomes an endless string of differing L's, K's, and R's, but that is invariably unworkable.[27] So what economists usually do is create some index of labor and capital that weights different qualities. And the easiest way to figure out what the weights should be, especially for capital goods, is with monetary values.

This subtle transformation from physical to monetary units not only infects equation 5.1's denominator, but also its numerator. The fact that cotton plantations also grew corn illustrates that sometimes a single firm has more than one output. This is always true of large economies. So now the several outputs must be combined in another index, weighted again according to monetary value. One unusual feature of these weighted measures of inputs and outputs is that the components are often added rather than multiplied. Consequently, "we are likely to end up with a geometric mean of arithmetic indexes," as Evsey D. Domar, the mathematical economist who helped pioneer this technique, warns us. He

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[27]One of the supplements to *Without Consent or Contract* computed geometric indexes that did separate out work animals as a fourth input on southern holdings, with little alteration in Fogel and Engerman's findings. See Randall B. Grossman, "An Alternative Procedure for the Aggregation of Farm Outputs and Inputs for the Purpose of Comparing the Total Factor Productivity of Classes of Farms," in Fogel, Galantine, Manning, eds., *Without Consent or Contract—Evidence and Methods*, No. 29, pp. 231–3.

nonetheless retains "the hope that, the same procedure being used on the input and output sides . . . , the resulting errors will cancel out, to some extent."[28]

Even should we construct a geometric index that uses only physical units for all inputs and outputs, monetary values can still enter the equation through the exponents, since the primary way to determine the contribution of each factor to output is to look at its relative price. These exponents, which add up to one, also must remain constant if we wish to compare the resulting G's. That is, l, k, and r, have to be identical in both 1840 and 1860 to detect any technological change during the interval. Or they must be identical between the North and South to compare their productivity. "When the factor shares of the two regions differ," as they most likely will, Fogel and Engerman tell us that "those of either one or the other region must be applied in both regions."[29]

Unfortunately, price data complete enough to determine l, k, and r for the antebellum period were unavailable, so Fogel and Engerman fell back upon a second expedient. They used information on inputs and outputs from the Parker–Gallman sample to construct a "production function" for southern agriculture. A production function is a mathematical equation that describes physical relationships within a firm or industry. Consider the simple example of equation 5.2:

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[28]Domar, "On the Measurement of Technological Change," 714. For an interesting exchange over this mixing of arithmetic and geometric means, see Domar, "On the Measurement of Comparative Efficiency," in Alexander Eckstein, ed., *Comparison of Economic Systems: Theoretical and Methodological Approaches* (Berkeley: University of California Press, 1971), and Abram Bergson's "Comment."

[29]Fogel and Engerman, *Time on the Cross*, v. 2, p. 136.

(5.2) $$Q = AL^{\alpha_L} K^{\alpha_K} R^{\alpha_R}$$

You plug in a certain number of hours for L, and a certain number of acres for R, and a certain number of agricultural implements for K, and the equation tells you the maximum number of cotton bales, Q, you can produce. You will notice the similarity of this equation (5.2) to the previous equation (5.1) for the geometric index after you divide both sides of equation 5.1 by the denominator of that equation's right–hand side. The two are not precisely the same, however. In equation 5.1, G is a variable index number, whereas in equation 5.2, A is technically another constant, like α_L, α_K, and α_R. More important, α_L, α_K, and α_R (which are called output elasticities) can equal the exponential constants in the geometric index under certain circumstances. But they will not do so if there are returns to scale.

This particular production function is far from universal. Not only a function's constants but also its form can alter, depending upon such empirical complications as the industry or firm under consideration. We cannot know *a priori* whether, for instance, we should multiply the inputs, as in this equation, or add them together. Yet Fogel and Engerman happened to choose equation 5.2 to describe antebellum agriculture, both North and South. They did so because it is an example of a Cobb–Douglas production function, named after economist (and Senator) Paul Douglas and mathematician Charles Cobb. Economists are fond of this functional form "not because it describes actual firms better than alternative

functions," as David Friedman reminds us, "but because it has some convenient mathematical properties."[30]

One of those properties relates to economies of scale. A Cobb–Douglas function can depict increasing returns, constant returns, or decreasing returns to scale, depending upon the sum of the exponential constants (output elasticities), in this case, α_L, α_K, and α_R. But this production function also has the constraint that "the ratio of the different inputs in the optimal input bundle stays the same as the scale of output increases."[31] That is to say, if 5 units of L, 3 units of K, and 1 unit of R happens to be the least expensive way—as measured by monetary costs—to produce a certain amount of Q, then doubling each input to 10 L, 6 K, and 2 R, must also be a least–cost bundle, so long as input prices remain unchanged. Output might exactly double, or it might go up by a smaller or larger magnitude, yet this has to be the least costly of all possible ways to increase it. That means that a Cobb–Douglas production function rules out any potential monetary gains from changing the input mix at different output levels—say doubling only L while keeping K and R constant.

But in the real world, such changes in input mix can easily be cheaper. Consider a software manufacturer. This is a situation, to quote David Friedman, "where one of the costs of production is designing the product." But "it is not necessary to double the input of designers in order to double the number of units

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[30]David D. Friedman, *Price Theory: An Intermediate Text*, 2nd edn. (Cincinnati: South–Western, 1990), p. 240. See also Murray Brown, "Cobb–Douglas Functions," in *The New Palgrave*, v. 1, pp. 460–1, where he reports that some economists dismiss the Cobb–Douglas function "as a child's toy in the world of real economics."

[31]Friedman, *Price Theory*, pp. 240–1.

of output."[32] (This also can be one of those cases, as we warned above, where you have economies of scale even without increasing returns to scale.) For a more relevant example, turn to sugar cultivation. One main source of sugar's economies of scale was the huge capital outlay for the sugar mill, averaging at least $15,000. Once this investment was made, sugar output expanded with disproportionate expenditures on labor and land only. Moreover, plantations rarely rented out their sugar grinding services (unlike cotton ginning) because of the limited time between harvest and grinding. A Cobb–Douglas function therefore inadequately describes the physical productivity of sugar plantations.[33]

The authors of *Time on the Cross*, nonetheless, fitted a regression to the mountains of data on southern farms and plantations from the Parker–Gallman sample to calculate the Cobb–Douglas output elasticities, α_L, α_K, and α_R. The resulting constants totaled more than one, suggesting economies of scale. Fogel and Engerman then reduced them slightly by a scale factor to derive the corresponding exponential weights for the geometric index. They ended up with an *l* of 0.58 (or 58 percent), a *k* of 0.17 (or 17 percent), and an *r* of 0.25 (or 25 percent), which were assumed to be the factor shares in the value of agricultural

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[32]*Ibid.*, p. 241.

[33]Schmitz, "Economies of Scale and Farm Size in the Antebellum Sugar Sector"; Gray, *History of Agriculture in the Southern United States to 1860*, v. 1, p. 542. The best explication of the high transaction costs that required the vertical integration of sugar growing and sugar grinding is Ralph Shlomowitz, "Plantations and Smallholdings: Comparative Perspectives from the World Cotton and Sugar Cane Economies, 1865–1939," *Agricultural History*, 58 (Jan 1984), 6–10, although Shlomowitz notes that new milling technology in the late nineteenth century relaxed this requirement in parts of Australia and other areas.

output throughout the North and South.[34] This was tantamount to assuming that all the farms and plantations being compared obeyed a Cobb–Douglas production function. It implicitly disallowed any change in the optimal input bundle across regions or size.[35]

Once we have calculated geometric indexes of total factor productivity, what do the results imply, if anything, about relative efficiency? It turns out that any number of reasons for variations among computed G's remain possible, including just random error. Fogel and Engerman themselves mentioned "omitted inputs, failure to adjust for differences in the quality of inputs, neglect . . . of improvements in the organization of production, omitted outputs, disequilibria in markets, and differences in product [i.e., output] mixes."[36] Thus, any variable that is not properly incorporated within the index can cause disparities. Only after ruling out alternatives can we safely conclude that there are returns to scale.

Hence, what the geometric index really measures is not always immediately obvious. All we know at the outset is that it detects some

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[34]Fogel and Engerman, *Time on the Cross*, v. 2, pp. 132–3, 143; "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 275 (n. 3), 279 (n. 8). More precisely, Fogel and Engerman's regression yielded a value of 0.1815 for α_K and 0.2606 for α_R, plus a scale parameter of 1.0645. These values of α_K and α_R were divided by the scale parameter to derive $k = 0.17$ and r of 0.25, and then those results were subtracted from 1 to determine l. In their pre–*Time on the Cross* article, "The Relative Efficiency of Slavery: A Comparison of Northern and Southern Agriculture in 1860," Fogel and Engerman had not yet introduced a production function and used arbitrary factor shares based on post–bellum estimates: $l = 0.60$, $k = 0.20$, and $r = 0.20$.

[35]For an acknowledgment that distortions in the geometric index can arise from input mixes that vary not only *across* the categories being compared but also among the firms *within* each category, see Grossman, "An Alternative Procedure for the Aggregation of Farm Outputs and Inputs for the Purpose of Comparing the Total Factor Productivity of Classes of Farms," pp. 228–31.

[36]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 275.

unexplained residual. The authors of *Time on the Cross* incessantly referred to any and all variations in *G* as differences in "efficiency," but this is, again, their promiscuous and sloppy use of that word. We cannot automatically assume that estimates of what is more properly termed *productivity* translate into *efficiency*. Only some of the potential sources of productivity difference relate to economic efficiency. It is even conceivable that a higher geometric index emanates from a government subsidy, such as the underpriced water that many farmers receive today in the western U.S. Unless the inputs are adjusted for the fact that water in the west is far more scarce than in the east, apparent greater productivity could really be an indication of *inefficiency*.

In order to thoroughly understand the geometric index's bearing on efficiency, we must summon from Chapter 3 the distinction between productive efficiency (also known as technical efficiency, particularly in this context) and allocative (or utility) efficiency. Genuine returns to scale do usually enhance the first of these two types of efficiency, because the same inputs can now produce more output. Thus, if equation 5.1 uses purely physical units, correctly measured with no omissions, and if factor proportions are identical for every production process being compared, then our geometric index of total factor productivity indeed measures productive efficiency. A higher index for a firm, sector, or country, unequivocally tells us that it can use the same factors to produce more of one good without producing any less of another.

Relax any of those restrictions, however, and the judgment becomes trickier. We might only be looking at differences in profitability caused by something other than physical productivity, such as a lower–cost input mix. (The

critics of *Time on the Cross* made the unfortunate decision to clutter further economic jargon by introducing the needless term "revenue efficient" to cover the case of greater profitability.)[37] By the time we are adding together the different output values of cotton, corn, pork, etc. in the numerator of equation 5.1 as well as aggregating the denominator's inputs on the basis of monetary rather than physical values, we have long ceased to be able to say much of anything about productive efficiency, as such critics of *Time on the Cross* as David and Temin rightly insisted:

> The products of northern and southern farming were not . . . physically
> identical. Wheat, corn and hogs, for example, were raised in the regions
> above and below the Mason–Dixon line, but in different proportions.
> Moreover, the North grew neither cotton, nor rice, nor cane sugar. To form
> an aggregate measure of agricultural output for the two regions it is
> necessary somehow to render these physically disparate commodities
> commensurable, and for this purpose Fogel and Engerman adopt the
> economist's conventional method of weighting the items in the set of
> output quantities by standard (or uniform) relative prices. This means that
> the measures of the relative aggregate output for northern and southern
> agriculture depend upon a relative set of exchange values of the various
> crops prevailing in 1860 and hence reflect *inter alia* the relative
> commodity preferences of the consumers who participated in the markets
> where these prices were established. In this aggregation process the initial

[37]The initial perpetrators appear to have been David and Temin, "Slavery: The Progressive Institution?" in David, *et. al.*, *Reckoning with Slavery*, p. 221. Another possible meaning for "revenue efficiency" is suggested by the context in which it arose. David and Temin speculated that the apparent productivity of southern plantations may have stemmed from their ability to grow a crop, cotton, that northern farms could not grow. But in that case, revenue efficiency is just a confusing way to discuss a mis–measured input. Some land cannot produce cotton, just as some land cannot produce oil. You could, I suppose, say that enterprises on land without oil were less "revenue efficient" than those with active oil wells, but what you really mean is that the land with oil is an input that should be given a greater value in the geometric index.

concept of physical [i.e., productive] efficiency necessarily undergoes a subtle transmutation: "efficiency" comes to mean using less resources to produce a unit of whatever some standard group of consumers happens to *want*.[38]

At best under such circumstances, the geometric index may tell us something about allocative efficiency. But we have now accumulated a very long list of necessary preconditions, some of them stringent, to which we must add that the prices of all factors must equal their marginal social cost.

Whatever it was that Fogel and Engerman were ultimately measuring, we do know that their calculations captured more than mere returns to scale. Their own findings make this fact incontrovertible. Otherwise they would not have discovered a productivity difference of 9 percent between northern and southern *free* farms, which no one has claimed differed significantly in size. Nor would they have discovered a productivity difference of 29 percent between the slave–exporting and slave–importing states, for plantations of all sizes.[39] Whether these particular differences resulted from soil, climate, technology, unequilibrated profits, a unique harvest, or specification errors, they give us a good feel for the extent to which the geometric index of total factor productivity can have absolutely nothing to do with economies of scale.

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[38]*Ibid.*, pp. 218–9. This criticism was reiterated by Grabowski and Pasurka, "The Relative Technical Efficiency of Northern and Southern U.S. Farms in 1860," 598–600, and "The Relative Efficiency of Slave Agriculture: An Application of a Stochastic Production Frontier," 588.

[39]This fairly obvious and extremely trenchant but neglected point was raised by Allan J. Lichtman, "A Benign Institution? [review of *Time on the Cross*]" *New Republic*, 171 (6 & 13 Jul 1974), 24; Haskell, "Were Slaves More Efficient?", 40–2; and Wright, "Slavery and the Cotton Boom," 444.

III

Was there any productivity gap between northern and southern agriculture? Confining ourselves to free farms alone, we confront a disparity that is difficult not only to account for but also to make sense of. Since farms in the North produced no cotton, what possible meaning can we attach to a claim that these farms were 9 percent less productive than free farms in the South? Did southern farmers without slaves work more strenuously than their northern counterparts? Did they have access to superior soils or technology? Were they better informed about plant cultivation and animal husbandry? Observe in Table 5.1 that this gap is due entirely to the free farms of the New South. Free farms in the Old South come out approximately equal with those in the North. Thus, whatever caused the measured differential between the South's two sections probably had something to do with the differential between North and South.

One unambiguous interpretation is that farming in the free states was less profitable. Yet this would imply that the least wealthy southern farmers, those who owned holdings that *Time on the Cross* characterized as the region's least productive, nonetheless earned higher incomes than the average northern farmer, a claim so doubtful that it nowhere makes an explicit entrance in the writings of Fogel and Engerman. Indeed, after publication of *Time on the Cross*, Fred Bateman and Jeremy Atack examined a sample of 21,118 rural households, including 11,943 farms, in 20 northern states. This sample had been compiled by Bateman and James D. Foust as a northern complement to the Parker–Gallman sample. Bateman and Atack determined that the rate of return for northern agriculture was in the same range as for southern agriculture generally and for

other investments at the time—around 10 percent.[40] Some additional studies did find that manufacturing firms in the antebellum era earned rates substantially higher, but these high returns probably compensated for greater risk and, in any case, applied to both North and South.[41]

Critics of Fogel and Engerman offered two alternative explanations for apparent differences between North and South. Haskell, Wright, and later Schaefer blamed the 1859 cotton crop, with both supply and demand at exceptionally high levels.[42] Good weather had boosted output, while strong

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[40]Fred Bateman and Jeremy Atack, "The Profitability of Northern Agriculture in 1860," in Paul Uselding, ed., *Research in Economic History: A Research Annual*, v. 4 (Greenwich, CT: JAI Press, 1979). These findings were later revised for Atack and Bateman's book, *To Their Own Soil: Agriculture in the Antebellum North* (Ames: Iowa State University Press, 1987), pp. 247–66, and summarized in their chapter, "Yoeman Farming: Antebellum America's Other 'Peculiar Institution'," from Lou Ferlerger, ed., *Agriculture and National Development: Views on the Nineteenth Century* (Ames: Iowa State University Press, 1990). Bateman and Atack, however, include any capital gains on land within the northern rate of return, something that was not included in the southern estimates. They also report very low rates on farms in some of the frontier states, thereby lowering the Midwest's average relative Northeast's. I attribute this mainly to federal land policies, which combined *de facto* homesteading with subsidized protection of titles. That combination, as many economists have pointed out, encourages premature settlement and genuinely inefficient farming, with its associated deadweight loss. See R. Taylor Dennen, "Some Efficiency Effects of Nineteenth–Century Federal Land Policies: A Dynamic Analysis," *Agricultural History*, 51 (Oct 1977), 718–36; Richard L. Stroup, "Buying Misery with Federal Land," *Public Choice*, 57 (Apr 1988), 69–77; and Terry L. Anderson and Peter J. Hill, eds., *The Political Economy of the American West* (Lanham, MD: Rowman & Littlefied, 1994). Indeed, such an independent source of deadweight loss could go a long way toward explaining many of the antebellum Midwest's apparent economic anomalies that we have noted in this and the previous chapter. Recall that Missouri was usually counted within the Midwest, when it was counted at all, whereas Texas was the only frontier state to maintain control over the sale of its public lands. Unfortunately, this topic lies beyond the scope of our study.

[41]Fred Bateman, James D. Foust, and Thomas Weiss, "Profitability in Southern Manufacturing: Estimates for 1860," *Explorations in Economic History*, 12 (Jul 1975), 211–31; Bateman and Weiss, "Manufacturing in the Antebellum South," in Uselding, ed., *Research in Economic History*, v. 1 (1976); and Bateman and Weiss, *A Deplorable Scarcity: The Failure of Industrialization in the Slave Economy* (Chapel Hill: University of North Carolina Press, 1981).

[42]Haskell, "Were Slaves More Efficient?"; Wright, "Slavery and the Cotton Boom," and "The Efficiency of Slavery: Another Interpretation"; Schaefer, "The "Effect of the 1859 Crop Year

international markets held prices firm. But Fogel and Engerman tested the sensitivity of their results to these variables and responded that any plausible adjustments would do little to eliminate the North–South gap.[43] David and Temin, taking another tack, challenged the way the land input was measured.[44] Total farm acreage conceals variations in soil fertility, land improvements, and other qualitative factors. To compensate, *Time on the Cross*'s most refined measures of R had substituted for the quantity of farm land its value, plus the value of improvements. This created a potential distortion through the influence of location and transportation on land values.

Here is the problem. On the geometric index's output side, Fogel and Engerman weighted different agricultural products *not* with prices received at the farmgate. Instead, they relied on uniform national averages. But farms farther from markets were paid less for their crops and livestock, because of higher transportation costs. These costs worked their way backwards to also reduce the value of the farmer's land, so that in equilibrium profitability tended to be little affected (unless the land had some alternative demand). Conversely, farms in superior locations commanded higher farmgate prices and the land was worth more. The impact of location would have dropped out entirely from the comparative G's if Fogel and Engerman had coupled the use of land values for the

Upon Relative Productivity in the Antebellum Cotton South." Schaefer, we should add, finds considerable variation on this pattern within the South.

[43]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 280–2, and "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," pp. 278–9.

[44]David and Temin, "Slavery: The Progressive Institution?", pp. 214–18, and "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Comment," 215–8.

inputs with farmgate prices for the outputs. With national prices, however, they artificially pumped up the output of the more remote farms, whose lower land values depressed their measured input. Those farms would appear more productive than otherwise. Or to look at it from the opposing direction, farms close to markets had their computed productivity reduced relative to farms far from markets.

David and Temin contended that this locational bias overstated the southern *G* relative to northern, because the North had a better developed transportation network that reduced costs and brought more of its farms nearer markets. For the same reason, the productivity of the newer, slave–importing states was overstated relative to the older, slave–exporting states. There are several conceivable ways to correct this bias, and Fogel and Engerman subsequently adopted one that revalued farm land downward by trying to remove locational rents. When they did this, the productivity of large plantations relative to small rose still higher, because the larger plantations tended to be situated on better located land. As for the difference between North and South, it actually moved in the opposite direction to that predicted by David and Temin. The average value of an unimproved farm acre in the free states was only an estimated $1.80, as compared with $4.29 in the slave states.[45] Fogel and Engerman concluded that locational rents, for whatever reason, were higher in the South.[46]

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[45]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 282–5, and "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," pp. 267–73. Fogel and Engerman used a regression to estimate the value of unimproved farm land for the North and for various size farms in the South. They assumed that this approximated the locational rent, which they then *removed* from land values. David and Temin, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum

Fogel's student, Yang, published the final North–South comparison bearing the Fogel-and-Engerman imprimatur in one of the supporting volumes of *Without Consent or Contract*.[47] Yang replaced census aggregates for northern agriculture with the Bateman–Foust sample, so that the region's geometric index could be grounded in the same kind of micro data that the Parker–Gallman sample had long provided for southern agriculture. He also adopted Fogel and Engerman's method of removing locational rents from land values in both regions and made numerous other minor adjustments. Some brought northern and southern G's closer together; others pushed them farther apart. Although Fogel and Engerman had been coy about exactly which states were grouped into the two regions, one of their articles let slip that the slave state of Missouri was counted as part of the North (just as in the Easterlin–Engerman regional income estimates we

South: Comment," 215–8, objected to this procedure. They instead *incorporated* their estimate of the rent on well–located land into all land values. In the former case, the value of well–located land has been adjusted downward to the level of poorly located land; in the latter case, the value of poorly located land has been adjusted upward to the level of well–located land. If done properly (a very big if), either procedure should work. But there is also some doubt whether the *average* value of unimproved land captured the locational rent in its entirety, given that not every unimproved acre was expected to be converted into an improved one in the immediate future.

[46]Fogel and Engerman offered a strange rationale for this unexpected result in "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 285 (n. 19), and "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," pp. 269, 295 (n. 3). In the later article, they argue that "within the framework of a general equilibrium model," between 1840 and 1860 in the North, "the massive increase in supramarginal land brought about by the railroad construction probably lowered rather than raised the average locational rent per acre of land in farms." I am perplexed at how the change in locational rents over time *within* the North relates to locational rents at one point in time *between* the regions, but the point is moot. As we note below in the text, the seemingly lower locational rent for the North results solely from biases introduced by the Bateman–Foust sample.

[47]Yang, "Agricultural Productivity in the Northern United States, 1860." See also Yang, "Notes on the Sensitivity of Regional Comparisons of Total Factor Productivity to Alternate Procedures," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, pp. 233–7.

examined in the previous chapter).[48] Yang, by contrast, left both Missouri and Maryland out of his northern data. He even used two sets of exponential weights in the geometric indexes, one drawn from the South and the other from the North. According to his results, which appear in Table 5.2, southern free farms were now an astonishing 36 to 39 percent more productive than the average northern farm. Yang ascribed this huge chasm to deficiencies in the Parker–Gallman sample, which had undercounted both hired hands and tenant farmers in the cotton South.

Yet tucked away in another supplemental volume of *Without Consent or Contract* was Fogel's confession that $1.80 per acre of unimproved land in the North for 1860 is too low. The regression that yielded this estimate combined data from the published census with that from the Bateman–Foust sample. But in order to measure hired labor accurately (something the Parker–Gallman sample had failed to do), the Bateman–Foust sample deliberately excluded any farms close to cities. Which means that it excluded the northern land with the highest locational rent, and by Fogel's reckoning understated the average per–acre value of northern farms by about 15 percent.[49] If that entire error stems from the better locations of the omitted farms, then the northern rent jumps from $1.80 to $10.43 per acre,

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[48]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," p. 275.

[49]Fogel, "Introduction: Notes on the Art of Empirical Research in the Social Sciences during an Age of Plunging Costs in Data Processing," in Fogel, Galantine, Manning, eds., *Without Consent or Contract—Evidence and Methods*, pp. 10–14, 41 (n. 12).

significantly above the South's.[50] Adjusting northern land values with this higher

rent would close the North–South gap, just as David and Temin predicted.

Nowhere in their computations of relative factor productivity do Fogel and

Engerman make this correction. Thus, it is no surprise that Yang adopted the

$1.80 figure, despite numerous other modifications, including a slight and

unexplained upward revision in the southern locational rent.[51] The land input is

primarily why Fogel and Engerman's productivity differentials *for free farms*

alone (9 percent) is lower than Yang's estimates in Table 5.2 (36 and 39 percent).

Yang's locational adjustment propelled the numbers in the wrong direction. The

land input is also one main reason that *Time on the Cross*'s original, crude

productivity differential *for all holdings*, North and South, (6 percent) was lower

than the more refined estimate in Table 5.1 (35 percent).[52] The crude index used

raw acres only, whereas the refined index used land value, introducing a

pro–South locational bias in the first place. And the land input is probably why

Grabowski and Pasurka in a 1988 journal article, testing a much smaller sample of

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[50]Fogel, in *ibid.*, p. 10, gives the per–acre value of a farm in the Bateman–Foust sample as $21.85, whereas the comparable figure in the published census is $25.16. The value reported by Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," p. 270, from the Bateman–Foust sample for northern improved land was $34.38 per acre. For northern unimproved land, as we have already observed, it was $1.80. Thus, the respective weights for averaging these two must be .615 and .385. If we apply those weights to the higher average value of $25.16, and hold constant the value of improved land, unimproved land must rise to $10.43 per acre. That is, [$25.16 – 0.615($34.38)]/0.385 = $10.43.

[51]Yang, "Agricultural Productivity in the Northern United States, 1860," p. 310, Table 14.5. Yang raised the value of unimproved land in the South from $4.29 per acre to $5.70 per acre.

[52]The crude index is in Fogel and Engerman, *Time on the Cross*, v. 2, p. 132. Total acres was also the land input in Fogel and Engerman's pre–*Time on the Cross* article, "The Relative Efficiency of Slavery: A Comparison of Northern and Southern Agriculture in 1860," but (as we mentioned in n. 32 above) they used different exponential weights (output elasticities), yielding a slightly higher productivity difference of 9 percent between northern and southern agriculture generally.

131 farms from the Parker–Gallman and Bateman–Foust samples, but with a much more powerful production function than the Cobb–Douglas, rejected any productivity gap between North and South. They too used total acres.[53]

Fogel and Engerman, by this time, had all but conceded that any disparities in *G*, when comparing at least "the free farms of the North and South," were a statistical artifact anyway. For in their 1980 *American Economic Review* article, reprinted in one of the volumes of *Without Consent or Contract*, they presented a diagram that placed both those categories, "as well as the small slave farms of the South," at distinct points along a single, concave production possibility boundary. This thereby consigned any variability in computed geometric indexes to differences in output mix.[54] The authors of *Time on the Cross* were no longer insisting on any returns to scale until southern planters crossed the gang labor threshold of fifteen slaves. To the plantations above this threshold, and to those plantations alone, they were now ascribing all bona fide differences in measured productivity, both across the Mason–Dixon line and within the South itself.[55]

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[53]Grabowski and Pasurka, "The Relative Technical Efficiency of Northern and Southern U.S. Farms in 1860."

[54]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," p. 276. The corresponding page in the original, *American Economic Review* version of this article is 678.

[55]In fact, Fogel and Engerman were already moving toward this conclusion in their earlier (1977) article, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 278, 288: ". . . only 4 percent of the efficiency [*sic*, productivity] advantage of southern over northern agriculture was due to the superior performance of the free sector. Slave farms accounted for 96 percent of the southern advantage. . . . Thus nearly all of the southern productivity advantage is explained by the extent to which the productivity of medium and large slave plantations exceeded the efficiency [productivity] of small free farms, whether these small farms were located in the North (where they could not produce cotton) or in the South (where they did produce cotton)."

IV

We noted already that Fogel and Engerman employed the geometric index to make two sets of comparisons: the first between northern and southern agriculture and the second among farms and plantations of various sizes and of differing locations within the antebellum South. Authentic economies of scale should have shown up most distinctly in the second set, so let us examine them more closely. Among the many early objections leveled at the results in Table 5.1, one of the most penetrating was from Schaefer and Schmitz. Fogel and Engerman had tried to detect returns to scale by classifying southern holdings into four groups according to the number of slaves: none, 1–15, 16–50, or more than 50. But a more conventional way that economists measure firm size is to look at total output, rather than the inputs. This would group southern holdings by how much cotton and other products they produced, not by how many slaves they coerced. Although related, the "two concepts," Schaefer and Schmitz pointed out, "are not necessarily consistent measures of size."[56]

At this stage, the debate took a surrealistic turn. Schaefer and Schmitz wanted to show that large farms and plantations were more productive than small ones, irrespective of the number of slaves. "Hence, what we believe to be a relationship between scale and productivity was misconstrued to be one between slaves and productivity."[57] One would have thought that establishing just such a

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[56]Schaefer and Schmitz, "The Relative Efficiency of Slave Agriculture: A Comment," 208.

[57]*Ibid.*, 209. Schaefer had earlier made the same argument for tobacco cultivation in Tennessee and Kentucky: "Productivity in the Antebellum South: The Western Tobacco Region," in Uselding, ed., *Research in Economic History*, v. 3 (1978).

relationship "between scale and productivity" was exactly Fogel and Engerman's main point, yet they flat out rejected it and exposed fatal errors in Schaefer and Schmitz's analysis.[58] The authors of *Time on the Cross* were apparently oblivious to how they thereby undermined their own position. By making any so–called "returns to scale" dependent *solely* on increases in slave labor, they in effect admitted that free laborers could not capture such returns. This meant that Fogel and Engerman had improperly specified the labor variable in their geometric indexes, because slave and free labor were really different inputs.

Yoram Barzel, in a footnote to his 1977 theoretical analysis of slavery, had already grasped the possible distortion from treating slave and free labor as perfect substitutes. He observed that "measured 'economies of scale to farm size' may simply be due to the increasing proportion of slaves."[59] If slaves did work harder on average than did free laborers, the productivity of a fixed work force would have automatically risen as the percentage of slaves moved from zero to one hundred. Since larger plantations in fact held a greater proportion of their work force in bondage, they necessarily would seem more productive, even without any returns to scale.

Further clarification of Fogel and Engerman's conceptual muddle between working harder and scale effects awaited researchers who evaluated southern agriculture with techniques more advanced and sophisticated than the somewhat

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[58]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," pp. 291–3.

[59]Yoram Barzel, "An Economic Analysis of Slavery," *Journal of Law and Economics*, 20 (Apr 1977), 92.

crude geometric index of total factor productivity. The first to test explicitly the specifications of Fogel and Engerman's model was Thomas M. Zepp in 1976.[60] He concluded it was a close enough approximation to justify the comparisons made. However, Schaefer and Schmitz, upon returning to the discussion in 1982, discovered good statistical reasons to reject a single, Cobb–Douglas production function as "adequate to describe the entire cotton South." And if Fogel and Engerman's function was "an unjustified simplification of reality," then any comparison based on it "*has no meaning* [emphasis original]."[61]

Finally in 1988, Elizabeth Field published two articles applying a far more general production function, the transcendental logarithmic (translog), to the Parker–Gallman sample. In addition, her land input eliminated the bias from location in a way that avoided all the problems with Fogel and Engerman's technique. Field also became the first to model slave and free labor as distinct factors, L_{slave} and L_{free}. "Although Fogel and Engerman . . . are implicitly stating that free and slave laborers differed as productive inputs," she observed, "they employ an aggregate labor variable and a functional form which makes strong assumptions about substitutability of factors." Since free farms had no slave input, however, Field's advanced procedure made impossible any formal productivity comparisons between holdings with slaves and those without, whether southern or northern.

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[60]Zepp, "On Returns to Scale and Input Substitutability in Slave Agriculture."

[61]Schaefer and Schmitz, "Efficiency in Antebellum Southern Agriculture: A Covariance Approach," 97, 95, 92. Schmitz and Schaefer had earlier published a more limited critique of Zepp's article: "Slavery, Freedom, and the Elasticity of Substitution," *Explorations in Economic History*, 15 (Jul 1978), 327–40.

While her excruciatingly complex model ostensibly confirmed that plantations with over 15 slaves were 24 percent more productive than small slave farms, Field in reality weakened *Time on the Cross*'s analytical edifice. For she found "no significant economies of scale in the ordinary sense under either [slaveholding] regime."[62] Moreover, in Field's second article, which tested data covering southern free farms as well, she reported "that modeling Southern slave agriculture with a . . . Cobb–Douglas function, or treating free and slave labor as perfect substitutes, is unacceptable, and will not yield defensible results . . ."[63]

Grabowski and Pasurka took the analysis a step further in 1989 by introducing a random term into both Cobb–Douglas and translog functions. Under these stochastic production frontiers, any difference within the South between slave and non–slave agriculture simply vanished. Unfortunately, Grabowski and Pasurka had drawn a fairly small sample of only 121 farms and plantations from the Parker–Gallman data (which of course was a sample itself), and they simplified the measures of both inputs and outputs, potentially compromising their conclusions.[64] In a response, Richard A. Hofler and Sherman T. Folland

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[62]Field, "The Relative Efficiency of Slavery: A Translog Production Function Approach," 544, 548. Field's "land index consists of improved acreage multiplied by a soil quality index derived from information on soil types contained in the Parker–Gallman sample [544–5]."

[63]Field, "Free and Slave Labor in the Antebellum South: Perfect Substitutes or Distinct Inputs," 659. The elided words in the quotation add what are called CES (constant elasticity of substitution) production functions to Field's indictment. The Cobb–Douglas production function is one form of CES production function, whereas the translog production function does not impose a constant elasticity of substitution.

[64]Grabowski and Pasurka, "The Relative Efficiency of Slave Agriculture: An Application of a Stochastic Production Frontier," 587–95. Specifically, Grabowski and Pasurka threw out some minor farm products such as wine, honey, and beeswax, and in a more serious simplification, used unadjusted acreage for the land input.

applied a stochastic translog production frontier with separate inputs for slave and

free labor to Field's larger data set of 2080 slave farms. Since they could not

include any southern free farms, their findings did not strictly address Grabowski

and Pasurka's comparison of slave and non–slave agriculture.[65] Yet Hofler and

Folland seemingly verified Fogel, Engerman, and Field's threshold of 15 slaves,

with a peculiar twist. Gang labor was indeed a superior technology but at the

same time gave field hands more opportunities for shirking. Large plantations had

the capacity to be more productive but failed to fully realize that capacity. In the

terminology of Hofler and Folland, gang labor provided a "technological

advantage" that in practice "exhibited a greater degree of revenue inefficiency."[66]

With these tendencies counterbalancing, the gang–labor plantations still enjoyed a

slight edge over those small farms that also used slaves.

We do not have to rely on this somewhat inconclusive technical literature,

however. Fogel himself in *Without Consent or Contract* inadvertently delivered

the *coup de grace* to the existence of any genuine scale economies in cotton

cultivation. Figure 5.1 reproduces a chart from page 76 of that work.[67] One of the

justifiable complaints from critics of *Time on the Cross*—with its one volume of

text alone and another of citations—had been the elusive and often incomplete

documentation for its claims. Fogel for the most part rectified that defect in

Without Consent or Contract. Maddeningly, this chart is an exception, with its

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[65]As Grabowski and Pasurka pointed out in "The Relative Efficiency of Slave Agriculture: A Reply," *Applied Economics*, 23 (May 1991), 869–70.

[66]Hofler and Folland, "The Relative Efficiency of Slave Agriculture: A Comment," 861, 867.

[67]Fogel, *Without Consent or Contract*, p. 76.

derivation nowhere to be found in the main volume or any of the three supporting volumes. Fogel nevertheless presents it as demonstrating the superiority of gang labor. Southern farms without slaves are compared with plantations having more than 50. Both these categories are ranked into ten groups according to their geometric indexes of total factor productivity (G) as measured on the vertical axis. The 10 percent of free farms with the lowest G are set against the 10 percent of slave plantations with the lowest G, and so on up the deciles.

What is most striking about Figure 5.1 is *not* the fact that free farms come out about 50 percent lower in all ten ranks. That could easily result from slaves being forced to work harder, especially when we keep in mind that only plantations with over 50 slaves are depicted. Far more significant is the incredible range in the two categories. As Fogel himself admits, "the efficiency [*sic*, productivity] of gang–system producers varied nearly as much as that of free farmers." Notice that the top 10 percent of free farms are *more* productive than all but the top 20 percent of the largest slaveholdings. (This top 10 percent is not even necessarily the largest 10 percent of free farms, since the latter information is not revealed in the chart.) "On the other hand," admits Fogel, "the lowest deciles of the large slave plantations were so inefficient [unproductive] that they could not compete with most of the free farms . . . ."[68] In short, the variation

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[68]*Ibid.*, pp. 75, 74. Fogel goes on to say: "Some owners of these inefficient plantations went bankrupt. Others sold out." On the other hand: "Many of these very efficient free farmers soon purchased slaves and some eventually accumulated enough capital to rise into the ranks of gang–system planters." But Fogel provides no evidence for these statements. Indeed, because his data are a cross–sectional sample from a single year, there is little way he could track these agricultural enterprises over time. Since the year is 1859, just before Civil War's outbreak, Fogel's surmise about the future rise of those free farmers depicted in the chart is almost certainly false.

within different size groups of southern holdings almost swamps any differences *between* the groups, just as some of the statistical analyses mentioned above suggested.

Coercion induced agricultural slaves to toil harder than free farm laborers. Scholars owe Fogel and Engerman, plus all their students and associates, a debt of gratitude for amassing evidence that puts this conclusion beyond reasonable doubt. But as the debate over slavery's microeconomic efficiency became more convoluted, Fogel and Engerman made a succession of unacknowledged retreats from the assertions originally staked out in *Time on the Cross*. The first retreat, already discussed, changed their emphasis from the peculiar institution's positive incentives to its negative incentives. The second retreat involved the nature of alleged economies of scale. In Fogel and Engerman's initial formulation, these economies seemed to arise from the characteristics of cotton cultivation itself, like the economies of scale in sugar production. By their final formulation, the distinctive source of these economies was slave management. To be fair, the lines between these positions are neither sharp nor obvious. One can find all the elements of *Without Consent or Contract*'s final formulation within the covers of *Time on the Cross*, if one searches diligently enough. Wright remarked that "*Time on the Cross* does not always clearly separate the hypothesis of scale economies from the hypothesis that slave labor possessed an 'efficiency advantage' over free labor."[69] But this hardly speaks well for the lucidity of Fogel and Engerman's exposition.

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[69] Wright "Prosperity, Progress, and American Slavery," in David, *et. al.*, *Reckoning with Slavery*, p. 316 (n. 23).

We can better appreciate Fogel and Engerman's equivocation on scale economies by returning to their analogy between gang labor on the plantation and the assembly line in the factory. This analogy is simultaneously apt and misleading. Apt because the disciplined routine, division of tasks, and team work of the gang and the factory were similar. Misleading because factories did not *primarily* drive labor faster or harder. Factories embodied technological breakthroughs, usually in the form of capital goods, that converted a fixed or similar quantity of work into greater output. Most assembly lines can attain their high output even with shorter work shifts, so long as the supply of labor keeps every shift fully manned and the factory running. By using this analogy, Fogel and Engerman originally implied, and indeed explicitly stated, that the plantation gang was likewise a superior technology, whose advantages were accessible to free farmers.

But in their final position, gains were available only with slaves. If the plantation gang offered any technological advantage, it was in the technology of applying force. If there were any economies of scale, they inhered in the costs of coercion rather than in cotton growing *per se*. A single overseer could possibly cow twenty slaves nearly as easily and cheaply as one slave. As Frederick Law Olmsted observed, "[a] man can compel the uninterrupted labor of a gang of fifty cotton–hoers almost as absolutely as he can that of a gang of five."[70] Kenneth Stampp's *Peculiar Institution* had postulated such an advantage for large plantations, and Giorgio Cannarella and John Tomaske, in an analysis of slave

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[70]Frederick Law Olmsted, *A Journey in the Back Country* (New York: Mason Brothers, 1860), p. 226.

management, referred to the external economies of using force.[71] Actually, this was not a true externality unless it operated across plantations. One of the reasons large firms, including plantations, exist is because they capture gains that otherwise would be out of reach. But given that these economies were confined to various size slaveholdings alone, they obviously could not influence the relative productivity of slave and free agriculture.[72] Something that can only make 16 slaves working together on a single plantation more productive than 16 slaves working on separate plantations logically tells us nothing about the comparative capabilities of 16 free laborers.

The bottom line is that the peculiar institution's apparent superiority—both relative to the North and across different holdings in the South—resulted entirely from forcing slaves to work harder. Stefano Fenoaltea came to this realization in his 1984 transaction–costs model of slavery; any "productivity of the gang slaves appears attributable specifically to their subjection to the lash and not to conventional economies of scale."[73] To the extent

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[71]Kenneth M. Stampp, *The Peculiar Institution: Slavery in the Ante–Bellum South* (New York: Alfred A. Knopf, 1956), pp. 412–3; Giorgio Cannarella and John Tomaske, "The Optimal Utilization of Slaves," *Journal of Political Economy*, 35 (Sep 1975), 621–9.

[72]One other possible source of scale economies in slave management, first suggested to me by John Robbart, was financial. Slave insurance was not well developed prior to the Civil War, with the result that large slaveholders bore less risk than small—*provided* the probability of an individual slave's sudden death or permanent disablement was independent of plantation size, a condition that most likely did *not* apply during epidemics. In any case, this risk also had no impact on the relative productivity of free versus slave agriculture. For details on slave insurance, see Gray, *History of Agriculture in the Southern United States to 1860*, v. 1, p. 473, and Eugene D. Genovese, "The Medical and Insurance Costs of Slaveholding in the Cotton Belt," *Journal of Negro History*, 45 (Jul 1960), 141–7.

[73]Stefano Fenoaltea, "Slavery and Supervision in Comparative Perspective: A Model," *Journal of Economic History*, 44 (Sep 1984), 645.

that Fogel and Engerman's geometric indexes reveal anything coherent, they tell us about variable labor inputs. Disparities in the indexes are therefore unrelated to productive efficiency. And since the plantation's augmented labor input deprived black workers of the leisure they would have preferred, it reflected allocative *in*efficiency, not the reverse.

<center>V</center>

One dispute remains unresolved: did plantation field hands work more hours or more intensely per hour? So far as I know, just two studies have investigated time worked in pre–Civil War agriculture.[74] The first was a 1974 Ph.D. dissertation written by Ralph V. Anderson under Robert E. Gallman.[75] Anderson examined the records of nine plantations for the period preceding 1840. "On all nine plantations, the work year was long," he and Gallman reported in the *American Historical Review*—"280 to 290 days and over 3,000 hours per year per equivalent prime worker."[76] But Anderson provided no contrast with free laborers on either side of the Mason–Dixon line. Although Gallman himself independently put the nineteenth–century work year at no more than 2,000 hours for free

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[74]I have excluded here a third estimate from Roger L. Ransom and Richard Stuch, which I do discuss in Chapter 7. Ransom and Sutch put the antebellum work year of male field hands at between 3,055 and 3,965 hours in *One Kind of Freedom: The Economic Consequences of Emancipation* (Cambridge, UK: Cambridge University Press, 1977), p. 233. But they rely on pure conjectures about the days per year and hours per day that slaves work, rather than any historical evidence, and the resulting estimate is much higher than any of those discussed here.

[75]Ralph V. Anderson, "Labor Utilization and Productivity: Diversification and Self Sufficiency on Southern Plantations, 1800–1840" (Ph.D. diss., University of North Carolina, 1974).

[76]Anderson and Gallman, "Slaves as Fixed Capital: Slave Labor and Southern Economic Development," *American Historical Review*, 64 (Jun 1977), 24–46.

farmers, he had worked backwards to this estimate from the agricultural sector's output and had no direct supporting evidence.[77]

The second study, from Fogel's student, John F. Olson, was not published until 1992, although an earlier mimeographed version had circulated widely, and Fogel and Engerman placed heavy reliance on Olson's work in their 1977 article.[78] Olson pointed out that the South's longer growing season—an issue brought up in David and Temin's critique of *Time on the Cross*—was not particularly relevant to work year's length. It had little effect on the actual time spent cultivating and harvesting individual crops and even less on time devoted to livestock and diary production. In fact, more hours of daylight made the summer workday in the free states potentially longer than in the slave states.[79]

From daily records of seven cotton plantations operating between 1840 and 1861, Olson estimated an average work year for slaves of only 2,798 hours. Having no information for the North that was comparable, he instead tapped data from *after 1900*, primarily the 1920s. The northern average per worker ranged from 3,006 hours annually for general farming to 3,336 hours annually for western diary farming. On the basis of this contrast, Fogel and Engerman

[77]Robert E. Gallman, "The Agricultural Sector and the Pace of Economic Growth: U.S. Experience in the Nineteenth Century," in David C. Klingaman and Richard K. Vedder, eds., *Essays in Nineteenth Century Economic History: The Old Northwest* (Athens: Ohio University Press, 1975), pp. 55–6, 71–3.

[78]Olson, "Clock Time versus Real Time: A Comparison of the Lengths of the Northern and Southern Agricultural Work Years"; Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 285–68.

[79]David and Temin, "Slavery: The Progressive Institution?" pp. 209–11, emphasized the relative number of frost–free days in the North and South.

concluded that "slaves worked approximately 10 percent fewer hours than northern farmers."[80] The shortfall's primary cause, according to Olson, was "the almost total absence of Sunday work" on southern plantations. When those fifty–two days per year were dropped along with others lost through illness, inclement weather, and holidays, "the average number of days in the slave work year appears to have fallen short of the potential by about 23 percent."[81]

We can have reservations about this analysis, even if we ignore the trifle of estimating the North's work year for the mid–nineteenth century with data from the early twentieth century. After all, it does seem unlikely that free farmers were working more hours at the later date, despite introduction both of machinery that made physical labor less arduous and of systematic diary farming that required more labor time. Olson's estimate of the slave work year, however, comes in part from the same twentieth–century data. Plantation records only provide the number of *days* field hands worked, and Olson's yearly average, 281 days, is at least within the range of Anderson's estimates. But Olson then multiplied this information times the average *hours* farm operators from the eastern and delta cotton region worked per day, by season, in 1936.[82] True, he adopted modern averages only because they coincided almost perfectly with his own independent estimates of the slave's workday, derived from hours of

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[80]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 285–68.

[81]Olson, "Clock Time versus Real Time: A Comparison of the Lengths of the Northern and Southern Agricultural Work Years," p. 227.

[82]*Ibid.*, p. 224.

available sunlight minus time for meals and rest, as reported in various

contemporary sources. Nevertheless, the assumption that plantation slaves worked

the same number of hours per day as did southern free farmers seventy–five years

later merits a bit more scrutiny.

Olson's annual total for slaves happens to be very sensitive to the daily

hours plugged in, as Anderson's much higher annual estimate attests. Olson's

twentieth–century authority for southern hours, a Works Progress Administration

report published by the Department of Agriculture, also gives the average daily

hours (by season) that *hired laborers* worked in the eastern and delta cotton

region. Those daily hours are slightly greater than for *farm operators*, which are

what Olson used. The longer workday for hired laborers would seem more

appropriate for estimating the work year of bound field hands. Substituting those

values in raises the resulting slave average by nearly 100 hours annually.[83] If we

expand further the slave's workday to include all daylight hours, the yearly

average jumps to 3,419 hours, higher than Olson's two northern estimates.[84] Nor

should we accept without hesitation that slaves worked not at all on Sundays,

plantation records notwithstanding. Surely there was livestock that required some

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[83]John A. Hopkins, *Changing Technology and Employment in Agriculture*, Work Projects Administration, National Research Project Report (Washington: Government Printing Office, 1941), p. 25. For farm operators in the eastern and delta cotton region, the total workday in 1936 was 10.6 hours in spring, 10.7 hours in summer, 10.7 hours in fall, and 7.7 hours in winter. For hired workers, it was 10.8 hours in fall, 10.9 hours in summer, 10.9 hours in fall, and 8.3 hours in winter. The substitution raises average slave hours on the seven sampled plantations from 2,798 to 2,881 per year.

[84]Olson's estimates of southern hours of daylight are 13.0 for spring, 13.9 for summer, 11.4 for fall, and 10.4 for winter. The average number of days worked in each season on the seven plantations he investigated are 73.6 days in spring, 71.3 days in summer, 68.8 days in fall, and 67.4 days in winter.

minimal care and other essential chores, perhaps not worth mentioning in the records. Sunday and other holidays were also when slaves tended their own garden plots, another unrecorded part of the labor input.[85]

More detail could be helpful about the twentieth–century totals for the North as well. Olson depended again on hours reported for farm operators, although two of his sources gave numbers that sometimes were higher but often lower for mere laborers. These sources do not specify whether these estimates are adjusted downward for meal breaks and illness, the same way Olson's southern estimates are. And one of Olson's sources raises questions about how representative the northern estimates are in the first place, admitting that "it is possible that the farmers for whom data are shown worked more hours than the average since, as a rule, the more enterprising farmers are more likely to be interested in records of this kind."[86]

What we really would like to know, moreover, is the length of the agricultural work year not for the North but for free farm laborers in the South. Only that comparison could directly tell us whether measured differences in southern productivity resulted from field hands working longer or more intensely. None of these objections are decisive. Olson has contributed a significant and unique study that prevents us from blithely presuming that plantation slaves

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[85]Stampp, *The Peculiar Institution*, pp. 79–80.

[86]J. B. Hutson, "Working Day of Farmers a High Average," in U.S. Department of Agriculture, *Yearbook of Agriculture, 1926* (Washington: Government Printing Office, 1927), p. 785; Hopkins, *Changing Technology and Employment in Agriculture*; T. R. Cooper, F. W. Peck, and Andrew Boss, *Labor Requirements of Crop Production*, University of Minnesota, Agricultural Experiment Station, Bulletin No. 157 (St. Paul: University Farm, 1916).

worked more hours than did free farmers. But at the same time, we are nowhere near certain that slaves worked fewer hours.

VI

Gavin Wright is one new economic historian who has consistently denied there were economies of scale in cotton production. After publication of *Time on the Cross*, he applied the most common test for such economies, the survivor test, by computing the percentage shares of total cotton output in both 1850 and 1860 for southern holdings in Fogel and Engerman's four size categories. Table 5.3 shows the results by soil regions and for the cotton South overall.[87] Notice that in the South overall the percentage of cotton grown by free farmers actually rose over the decade from 6.7 to 8.6. This empirically reinforces the *prima facia* case we mentioned at this chapter's beginning. "It is difficult to square the existence of significant scale economies," comments Wright, "with the smooth distribution of farm and slaveholding sizes. . . . If this is a disequilibrium distribution, it was a remarkably stubborn one."[88]

Wright has combined his rejection of scale economies with a fully developed, alternative portrait of southern agriculture. This portrait's most

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[87]Wright, "Prosperity, Progress, and American Slavery," p. 336, and *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: W. W. Norton, 1978), p. 84. The breakdown by soil region of Table 5.3 appears only in Wright's book, whereas his earlier chapter includes another survivor table by farm acreage, rather than slave numbers, for the cotton South overall. It tells the same story. Wright's 1860 data comes from the Parker–Gallman sample. His 1850 data is a smaller census sample of 897 farms from the manuscript schedules compiled by James Foust according the same principles as the Parker–Gallman sample. Fogel and Engerman, *Time on the Cross*, v. 2, pp. 144–5, presented their own survivor table, drawn from Gray, *History of Agriculture in the Southern United States to 1860*, v. 1, p. 529–44. It however looks at slave ownership rather than cotton output, showing a slight increase in concentration over the decade.

[88]Wright, *The Political Economy of the Cotton South*, p. 83.

prominent feature is worldwide demand, which Wright believes made the cotton South an extractive economy, blessed with—but also at the mercy of—unique resources. As for differences in the geometric index (*G*) within the slave states, he attributes them to systematic variations in the mix of crops. Growing cotton for outside markets was more lucrative than producing food for home consumption. Since cotton constituted a greater proportion of output on large plantations, they appear more productive. Free southern farmers and those owning a few slaves could have done as well if they had grown less corn and more cotton. But small farmers then would have had to abandon self sufficiency, something they were loath to do because of the market risks entailed. Hence these farmers "were not maximizing profits."[89] Or as Wright put it elsewhere, "the efficiency of slavery is historically specific to an era in which free households chose to sharply limit their participation in the market economy."[90]

We can trace the origins of this alternative portrait back at least to a 1967 *Agricultural History* article by Morton Rothstein. Rothstein adopted from development literature the then–fashionable notion of a "dual economy" and applied it to the cotton South. He found the economy divided into a modernized sector of market–oriented planters and a tradition–bound sector of subsistence

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[89]*Ibid.*, p. 62. See also Wright and Howard Kunreuther, "Cotton, Corn and Risk in the Nineteenth Century," *Journal of Economic History*, 35 (Sep 1975), 526–51; Wright, "Slavery and the Cotton Boom," 444–7; "Prosperity, Progress, and American Slavery," pp. 316–24; and "The Efficiency of Slavery: Another Interpretation," 222–6.

[90]Wright, "The Efficiency of Slavery: Another Interpretation," 225.

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farmers.[91] Rothstein said nothing about poorer farmers actively avoiding the market and was impressed with their lack of opportunity. But a far more ideological duality has received its most encompassing synthesis in Charles Sellers's general history of the Jacksonian era, *The Market Revolution*. According to Sellers, outright anti–market animus on the part of various ethnic and economic groups within the rapidly changing United States economy drove a kind of social and political *Kulturkampf*.[92]

Wright's depiction, lying somewhere between Rothstein's and Sellers's, invokes a flexible trade off. The South was not a stark "*bipolar* economy in basic patterns of production [emphasis original]" because "we observe a crop–mix continuum." This continuum was:

> . . . a response to differing circumstances, rather than a reflection of variations in psychologies or social conventions. . . . One need not view the small farmer's attention to subsistence production as an attachment to a lifestyle or to his leisure time, but instead as reasonable and prudent behavior considering his limited acreage and resources.[93]

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[91]Morton Rothstein, "The Antebellum South as a Dual Economy: A Tentative Hypothesis," *Agricultural History*, 41 (Oct 1967), 373–82. The concept of a dual economy was first injected into development economics by J[ulius]. H[erman]. Boeke, *Economics and Economic Policy of Dual Societies as Exemplified by Indonesia* (New York: Institute for Pacific Relations, 1953).

[92]Charles Sellers, *The Market Revolution: Jacksonian American, 1815–1846* (New York: Oxford University Press, 1991). See also Harry L. Watson, "Slavery and Development in a Dual Economy: The South and the Market Revolution," in Melvyn Stokes and Stephen Conway, eds., *The Market Revolution in America: Social, Political, and Religious Expressions, 1800–1880* (Charlottesville: University Press of Virginia, 1996). Perceptive critiques of Sellers's general thesis include Daniel Walker Howe, "The Market Revolution and the Shaping of Identity in Whig–Jacksonian America," in Stokes and Conway, eds., *The Market Revolution in America*; John Majewski, "A Revolution Too Many?" *Journal of Economic History*, 57 (Jun 1997), 476–80; and Daniel Feller, "The Market Revolution Ate My Homework," *Reviews in American History*, 25 (Sep 1997), 408–15.

[93]Wright, *The Political Economy of the Cotton South*, pp. 71, 69, 70.

Wright's portrait faces two objections. The first, more technical objection is whether the trade off between cotton and corn does, in fact, account for differences in calculated *G*. Wright constructed a series of regressions that showed a strong relationship between productivity and crop mix.[94] But all this proves is what we know already; less productive farms grew relatively less cotton. It does not establish causality. Is the cotton/corn ratio determining productivity (Wright's thesis) or is productivity determining the cotton/corn ratio (Fogel and Engerman's thesis). The authors of *Time on the Cross* responded with evidence that slave plantations were more productive at growing either corn or cotton, casting doubt on Wright's thesis.[95] And after controlling for crop mix, Schaefer and Schmitz discovered that productivity still increased with the number of slaves, indicating that the labor input was the decisive variable.[96]

A second, more general, objection is whether small farmers willingly gave up profits for security. This has become a long, ongoing debate, which has engaged many historians, and we can only survey what some economists have had to say. Before publication of any of Wright's work, Gallman on his own, Raymond C. Battalio and John Kagel together, and subsequently Gallman in cooperation with Anderson, provided another rationale for southern self sufficiency, as exhibited not only among small farmers but also planters in

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[94]*Ibid.*, pp. 74–80, Wright, "Prosperity, Progress, and American Slavery," pp. 334–6; and "The Efficiency of Slavery: Another Interpretation," 222–5.

[95]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," pp. 284–91.

[96]Schaefer and Schmitz, "The Relative Efficiency of Slave Agriculture: A Comment," 209–10.

general.[97] Even on the most commercially oriented plantations, with over 50 slaves, about 40 percent of crop value was food.[98] Cotton and corn were admittedly *substitutes* in production with respect to land; acres growing one could not grow the other. But with respect to labor, the two crops were *complements*, because their planting and harvesting seasons did not badly overlap. With land relatively abundant and slaveholders having an incentive to keep their fixed labor assets fully employed, the affinity between cotton and corn made good economic sense. We need not appeal to a safety–first motive to explain agricultural diversification among Southerners, poor or wealthy. Profit maximization may prove adequate.

There is no doubt that many small–scale farms were subsistence enterprises. But did this result from a heightened risk aversion or more mundane, economic considerations, such as distance from markets and high transportation costs? Wright's thesis requires that we accept Fogel and Engerman's geometric indexes as approximating the revenue given up by growing corn instead of cotton. This implicit insurance premium would then lower the expected annual income of small farmers by at least a quarter, making their risk aversion extraordinarily expensive.[99] In a local study of two counties from the Georgia upcountry, David

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[97]Robert E. Gallman, "Self–Sufficiency in the Cotton Economy of the Antebellum South," *Agricultural History*, 44 (Jan 1970), 5–23; Raymond C. Battalio and John Kagel, "The Structure of Antebellum Agriculture: South Carolina, A Case Study," *ibid.*, 33–4; Anderson and Gallman, "Slaves as Fixed Capital: Slave Labor and Southern Economic Development."

[98]Wright, *The Political Economy of the Cotton South*, p. 56.

[99]Fogel and Engerman, "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," 289–9, and "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," pp. 284–5. According to *Time on the Cross*'s original estimates in

F. Weiman discovered "that the spread of market production . . . depended on local development," particularly transportation. Given an option, small farmers were far from reluctant to produce cash crops.[100] James R. Irwin, meanwhile, tried to determine if Wright's thesis applied to the mix not between cotton and corn but between wheat and other crops in the Virginia Piedmont. "Simple econometric tests provide no support for the trade–offs approach" of Wright, he found, "but are consistent with scale effects."[101]

An ironic and ultimately unconvincing aspect of Wright's stress on the crop mix is that it displaces not only scale economies but also the labor input as a source of measured productivity gaps. Slave and free labor become close substitutes in an enterprise with constant returns to scale. Wright does not deny that "slavery involved the involuntary reallocation of family labor from nonmarket economic activity to production of crops for sale." But he is skeptical of any "greater intensity of slave labor" on the part of male hands.[102] This leaves unanswered the same question that dogged Fogel and Engerman. Why did free laborers almost never work on large plantations? The authors of *Time on the Cross* had to explain the indifference of such workers to the monetary gains from

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Table 5.1, plantations with 16 to 50 slaves were 45 percent more productive (and hence more profitable) than southern free farms (158.2/109.3 = 1.447). But Fogel and Engerman adjusted this implicit premium downward in response to Wright's contention, in "The Efficiency of Slavery: Another Interpretation," 224–5, that the unusual yield of the 1860 cotton crop upwardly biased that year's premium.

[100]David F. Weiman, "Farmers and the Market in Antebellum America: A View from the Georgia Upcountry," *Journal of Economic History*, 47 (Sep 1987), 627. My summary does not do justice to the many other interesting aspects of this study.

[101]Irwin, "Exploring the Affinity of Wheat and Slavery in the Virginia Piedmont," 295.

[102]Wright, "The Efficiency of Slavery: Another Interpretation," 225–6.

economies of scale. With constant returns, there were no gains but there were no penalties either, so long as we agree with Wright that prime hands worked no harder. Yet the South's plantations thrived only with slaves.

Fogel and Engerman posited a psychic aversion of free farmers to the discipline, routine, and intensity of gang labor, despite the possibility of higher total wages while working fewer hours. "The gang system was so obnoxious to free men," Fogel was still asserting in *Without Consent or Contract*, "that they could not be lured to work in gangs even when offered wage premiums to do so."[103] But this will not do. If plantations could offer higher *hourly* wages, they did not have to bid away all free farmers but just some workers at the margin. To argue that almost none could be enticed in an era when over three million immigrants took risky voyages across the Atlantic for slight expected increases in real wages is wildly implausible. In effect, Fogel and Engerman replaced the old argument that planters were maintaining the slave system by unprofitable conspicuous consumption with a new argument in which free farmers (and as we will see, free blacks after emancipation) become the irrational conspicuous consumers. We do not have to wholeheartedly embrace the efficient markets and rational expectations of the New Classical economists to realize, as John E. Moes has so aptly put it (in another context), that "the assumption that people will

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[103]Fogel, *Without Consent or Contract*, p. 108.

attempt to maximize" is far less heroic than "some of the assumptions that have to be made in the calculation process" to arrive at Fogel and Engerman's results.[104]

Wright answered the same question with the psychic benefits of being self–employed on one's own land. "The essential reason for the scarcity of farm labor," in both North and South, says Wright, "is that farmers preferred farm ownership and were able to attain it."[105] He further insists:

> It does no justice to the thinking of free households to attribute the preference for owner–operated family farms to an irrational desire for "independence" or an attachment to family farming "as a way of life." However prevalent such "nonpecuniary" motivation might be, there were good economic reasons as well. The family farm provided a substantial measure of security—against starvation, unemployment, or old–age destitution. In an era of undeveloped and risky financial institutions, the family farm provided a means of accumulating wealth in a reasonably safe form. . . . At the same time, family farming combined security with the possibility of large financial gains through an increase in land values. . . . Finally, the family farm gave the head of the household a convenient means for controlling and exploiting the labor of members of his own family.[106]

Antebellum agriculture therefore faced a labor constraint that could be overcome only with some form of compulsion. Wright is here adopting the theoretical framework of Howard Fleisig, who in a 1976 *Journal of Economic*

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[104]John E. Moes, "Comment," in National Bureau of Economic Research, *Aspects of Labor Economics: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton, NJ: Princeton University Press, 1962), p. 248.

[105]Wright, *The Political Economy of the Cotton South*, p. 45.

[106]*Ibid.*, pp. 46–7.

History article argued that "imperfect" markets caused an inelastic supply of labor at the farm level. That is, few were willing to work on farms for the market–determined marginal product unless land ownership or the future prospect thereof was part of the deal. Thus, free farms never expanded beyond family size, even with constant returns to scale, whereas slaveholdings could.[107] Fleisig is in effect stating that free agricultural in antebellum America was a case where you had diseconomies of scale, despite constant returns, due to rising input prices.

Although Wright has replaced what Fogel and Engerman termed the "nonpecuniary disadvantages"[108] of gang labor with the enticement of farm ownership, his answer still runs aground on a similar logical obstacle. As pointed out by Christopher Hanes: "Wright's argument is too broad. It applies to all occupations other than owner–operated farming, including industry. But in the antebellum South, urban shops and factories tended to employ [indeed, were quite successful at attracting] free workers . . ."[109] If farm ownership drew wage labor out of the fields, why did it not likewise draw wage labor out of the factories, rather than the exact reverse?

Hanes himself avoids this obstacle with an explanation for the same phenomena based on transaction costs. Agriculture, unlike manufacturing, requires labor at critical times during the season. A factory can shut down

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[107]Heywood Fleisig, "Slavery, the Supply of Agricultural Labor, and the Industrialization of the South," *Journal of Economic History*, 36 (Sep 1976), 572–97.

[108]Fogel and Engerman, *Time on the Cross*, v. 1, p. 236.

[109]Christopher Hanes, "Turnover Cost and the Distribution of Slave Labor in Anglo–America," *Journal of Economic History*, 56 (Jun 1996), 308.

temporarily at almost any instant, with only a temporary loss of output. But a farm

can lose the entire year's crop, if the requisite labor is not on hand at planting or

harvest. Thus, the potential loss from labor turnover is higher in agriculture. Yet

at the same time, rural labor markets are thin, with few buyers and sellers. "That

leaves farm employers uniquely vulnerable to random quits and temporary

absences, not to mention strategic threats to withdraw labor supply," writes

Hanes.[110] Manufacturers can more easily and quickly replace employees who quit

or are fired. Antebellum farm owners thus tended to prefer workers who would

not—or could not—leave, shirk, or strike at some crucial moment: workers such

as family members, contract labor, indentured servants, or slaves. To rely on

laborers who might walk off at will was just too costly for large farms or

plantations—at least until such modern technology as automobiles and telephones

made rural labor markets far more efficient.[111]

Hanes's focus on transaction costs is a more satisfying explanation for

diseconomies of scale in free agriculture. But regardless of our ultimate verdict

about Hanes, we fortunately do not have to endorse either Wright's crop–mix

trade–off or Fogel and Engerman's economies of scale. In the final analysis, they

are both tortuous models of southern agriculture, which must rely on

counter–intuitive, *ad hoc* motivations. The reason free workers almost never

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[110]*Ibid.*, 321. Hanes uncovered two attempts in the 1840s to run southern plantations with free labor, both of which failed.

[111]In other words, Hanes is suggesting that slavery allowed firms to vertically integrate their labor input in the same way, and for the same reason, that other forms of vertical integration can ensure the supply of other inputs. This approach is also taken by Shlomowitz, "Plantations and Smallholdings: Comparative Perspectives from the World Cotton and Sugar Cane Economies, 1865–1939," 3–5.

joined plantation gangs is far simpler and more straight–forward. As we have repeatedly emphasized, slavery's coercion could induce black workers to forego leisure. It could force slaves to work harder than free laborers. Indeed, slavery predominated precisely where that effect was strongest. This was the sole competitive advantage that the peculiar institution possessed. And when punishments were cheaper incentives than rewards, planters would not have offered free farmers any postivie wage premiums to work on gangs. Quite likely, the premiums would have been negative. We therefore should be unsurprised at Fogel and Engerman's discovery that slave agriculture was more physically productive than free agriculture. Insofar as the authors treated bound and voluntary labor as identical inputs, that is exactly the outcome we should have expected. But rather than evidence of slavery's efficiency, it is just another reflection of its inefficiency.

TABLE 5.1
Fogel and Engerman's Estimates of Total Factor Productivity
in Southern Agriculture (Northern Agriculture = 100)

SIZE OF HOLDING (Measured by Number of Slaves/Holding)	ALL STATES (in Parker–Gallman Sample)	SLAVE–EXPORTING STATES (Old South)	SLAVE–IMPORTING STATES (New South)
Free Farms	109.3	98.4	112.7
1–15 Slaves	117.7	103.3	127.2
16–50 Slaves	158.2	124.9	176.1
51 or More Slaves	145.9	135.1	154.7
All Slave Holdings	140.4	118.9	153.1
All Holdings in South (Slave and Non–Slave)	134.7	116.2	144.7

Sources: Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), p. 139, and "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South," *American Economic Review*, 67 (Jun 1977), 279.
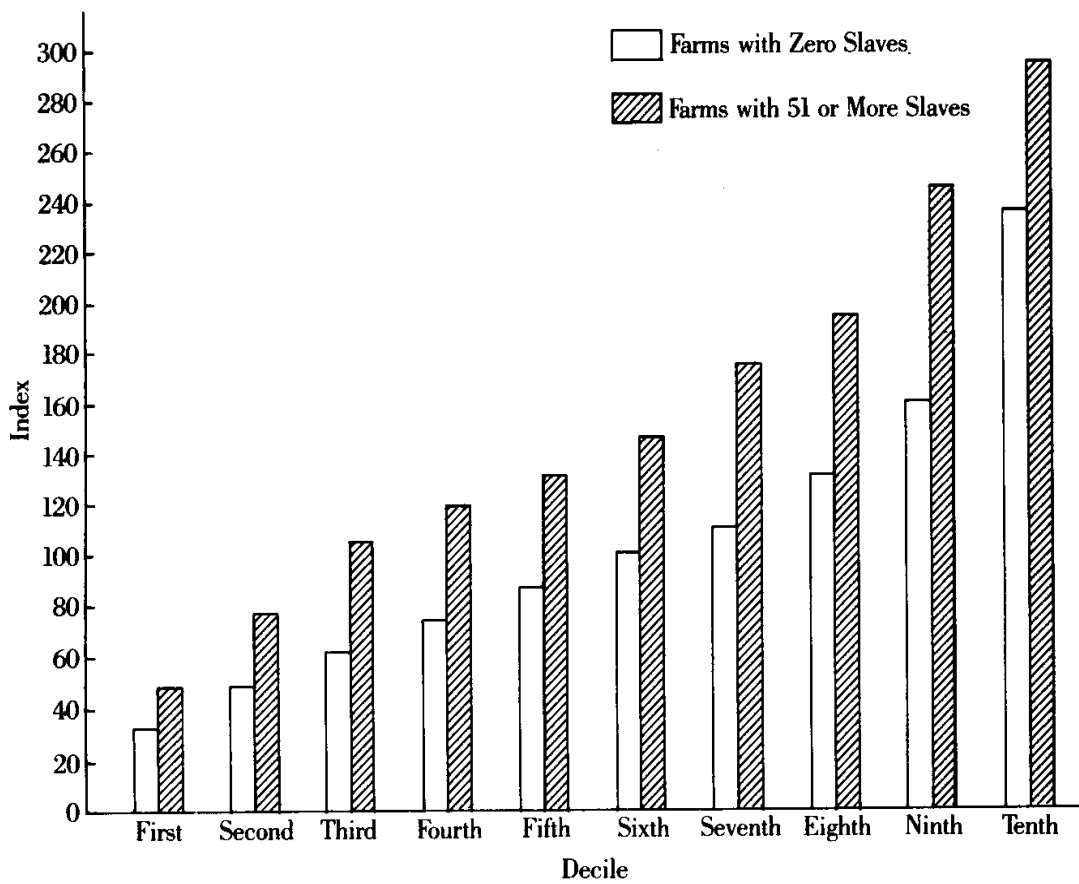
TABLE 5.2
Yang's Estimates of Total Factor Productivity in Antebellum Agriculture
(Compared with Fogel and Engerman's)

REGION AND SIZE OF HOLDING	FOGEL– ENGERMAN	YANG	
		Southern Input Weights	Northern Input Weights
North	**100.0**	**100.0**	**100.0**
Northeast		90.6	102.8[a]
North Central		107.5	98.9[a]
South	**134.7**	**138.9**	**141.7**
Free Farms	109.3	136.0	139.2
All Slave Holdings	140.4		
1–15 Slaves	117.7	119.7	120.9
16–50 Slaves	158.2	149.6	149.2
51 or More Slaves	145.9	157.3	168.2

[a]Northern estimates based on northern weights were computed with regional prices and the gross value of farms as land input. If computed with national prices and the land input adjusted for location, as were all other estimates in the table, they would instead be 91.6 for the Northeast and 106.6 for the North Central region.

Source: Table 5.1; Donghyu Yang, "Agricultural Productivity in the Northern United States, 1860," in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992), p. 315.

FIGURE 5.1:

Distribution of Geometric Indexes on Large Slave Plantations and Free Farms in the Cotton South (1860)

(Average Total Factor Productivity on Free Farms = 100)

Source: Robert William Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989), p. 76.

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TABLE 5.3
Shares of Cotton Output by Slaveholding Class
(1850 and 1860)

SOIL REGION	YEAR	FREE FARMS	1–15 SLAVES	16–50 SLAVES	50 + SLAVES
Piedmont	1850	6.6%	38.8%	37.0%	17.7%
	1860	9.1	27.0	44.4	19.5
Valley	1850	5.8	19.4	34.2	40.7
	1860	18.2	28.5	40.2	13.1
Western Upland	1850	11.2	20.8	47.8	20.1
	1860	17.5	26.5	36.6	19.4
Black Prairie	1850	2.1	15.5	34.2	48.2
	1860	3.4	18.7	53.1	24.9
Brown Loam	1850	7.5	12.9	28.3	51.3
	1860	5.0	13.6	46.7	34.8
Central Plain	1850	0.8	8.5	36.0	54.7
	1860	9.3	21.5	34.2	35.0
All Non– Alluvial	1850	7.0	23.5	34.5	35.0
	1860	10.0	23.6	42.1	24.3
Alluvial	1850	5.5	13.2	39.2	42.1
	1860	2.2	8.1	21.7	67.9
Cotton South	1850	6.7	22.7	35.1	35.6
	1860	8.6	20.5	38.1	33.0

Source: Gavin Wright, The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century (New York: W. W. Norton, 1978), p. 84.

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Chapter 6
Slavery and the Runaway

I

Slavery's enforcement costs, with their associated deadweight loss, have major implications for the origins of the American Civil War. The runaway slave was the peculiar institution's Achilles heel. Each fugitive did more than deprive the slaveholder of a valuable capital asset; if running away became easier, enforcement costs rose. This in turn reduced the value of remaining slaves. Manumission through self–purchase would become more appealing to slaveholders, but if they were to succumb to this appeal, the dissolution would accelerate. More manumissions meant more free blacks which further eased escape and raised costs until the viability of the system itself came into question.

Chattel slavery has never survived wherever bondsmen could easily abscond. Slavery in the Cape Colony of southern Africa, for instance, depended upon the transportation of blacks from Mozambique and Madagascar and of east Indians. The indigenous Khoikhoi (or so–called Hottentots) were nearly impossible to keep enslaved because they could escape too easily.[1] Likewise, when the Dutch controlled sections of Java, they imported slaves from outside the

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[1]Richard Elphick, *Kraal and Castle: Khoikhoi and the Founding of White South Africa* (New Haven: Yale University Press, 1977), pp. 175–92. See also the discussion in George M. Fredrickson, *White Supremacy: A Comparative Study of American and South African History* (New York: Oxford University Press, 1981), pp. 28–40, 54–70.

colony and preferably of diverse origins.[2] On the same island, the British initially

tried local slaves in factories at Banten during the seventeenth century, but their

workforce disappeared.[3] We could multiply the examples endlessly. Ancient

historian Daniel C. Snell has speculated as to why the Greek cities became one of

the earliest slave societies, in which "as many as a third of the inhabitants . . .

were slaves, a percentage that rivals that in the American South before the Civil

War." In contrast, "people who could be bought and sold . . . were not

economically important in any Ancient Near Eastern society." Snell concludes

that the reason was "the nearness of deserts and wastelands into which slaves

could escape in Western Asia and Egypt."[4]

Because of the ease of flight, "attempts by a conquering group to enslave a

conquered population en masse and in situ," observes Orlando Patterson in his

comparative survey of slavery worldwide, "were almost always disastrous

failures."[5] This judgment has also been endorsed by Robin Blackburn, who

asserts that "[i]t has been extremely rare for a people to be enslaved in its own

native land."[6] The Indians of America's northwest coast developed a

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[2]Susan Abeyasekere, "Slaves in Batavia, Insights from a Slave Register," in Anthony Reid, ed., *Slavery, Bondage and Dependency in Southeast Asia* (New York: St. Martin's Press, 1983), p. 286.

[3]Anthony Reid, "'Closed' and 'Open' Slave System in Pre–Colonial Southeast Asia," in *ibid.*, p. 173.

[4]Daniel C. Snell, *Life in the Ancient Near East: 3100–332 B.C.E.* (New Haven: Yale University Press, 1997), pp. 115, 123.

[5]Orlando Patterson, *Slavery and Social Death: A Comparative Study* (Cambridge, MA: Harvard University Press, 1982), p. 110.

[6]Robin Blackburn, "Defining Slavery—Its Special Features and Social Role," in Léonie J. Archer, ed., *Slavery and Other Forms of Unfree Labour* (London: Routledge, 1988), p. 268.

long–distance trade in slaves to overcome the propensity of captives from closer tribes to flee back to their homes.[7] Indeed, one factor that made slave trading such a prominent feature of early commerce, whether on the Indian Ocean, throughout the Mediterranean and Black Seas, across the Sahara, or from Africa to the New World, was its contribution to the hindering of successful escape.

We can formalize this feature of the peculiar institution by looking again at equation 2.2 from Chapter 2:

$$P = \sum_{t=1}^{n} \frac{T_t^*}{(1+i)^t}$$

(2.2)

The price of any slave, P, is the discounted present value of the expected stream of future transfers, T^*. The subscript, t, denotes the year, starting in the present and continuing over the slave's remaining life, n, whereas i is the annual interest rate. Many factors affected these T^*s, including the crop produced; the slave's age, sex, skills, and health; and the probability that the slave would live through the year in question. Another of those factors was obviously the danger that the slave would run away. Although a temporary absence might only lower T for a given year, a permanent departure would eliminate all future income to the slaveholder.

If slaveholders knew in advance which of their chattels were going to flee, and for how long, only the price of particular slaves would fall. But slaveholders did not have this knowledge. They therefore found themselves in a situation similar to that of creditors in the loan market. In a world of perfect foresight, no one would make a loan that he was certain was not going to be repaid (unless he

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[7]Patterson, *Slavery and Social Death*, p. 149.

wanted to disguise a gift as a loan). In the real world of imperfect foresight, the danger of default creates a premium on loans of varying riskiness. This premium can be thought to either raise the interest rate on a loan of fixed amount or reduce the amount of a loan with fixed interest. Either way, the risk premium provides the creditor with a kind of insurance. He hopes to earn on the good loans enough to cover losses on the bad loans. The higher the risk the greater the premium.

Modifying equation 2.2 with a few simplifications allows us to quantify this effect. Let p be the annual probability that a prime male hand runs away permanently, and assume it remains the same from year to year. Let $\overline{T}_p$ be the average annual transfer from prime hands, excluding p. In other words $\overline{T}_p$ incorporates all other variables, including risk of death and disablement and risk of temporary absences, but not the risk that slaves escape for good. Then the average price, $\overline{P}$, of prime hands will approximately equal formula 6.1. (For the derivation of this formula, see Appendix C.)

(6.1)
$$\overline{P} = \frac{(1-p)\overline{T}_p}{i + p}$$

Positing that \$1,200 was the average price of a male hand when their was no risk of permanent flight ($p = 0$), we can calculate the fall in $\overline{P}$ resulting from increases in p at an annual interest rate of 10 percent ($i = 0.10$). If only one out of every ten thousand prime hands ran away permanently ($p = 0.0001$, or 0.01 percent), the impact on average price was negligible but still noticeable. $\overline{P}$ would have fallen by merely \$1. Raise the probability to one out of a thousand ($p = 0.001$), and now average price will fall by \$13, or a little over 1 percent. If one out every hundred hands permanently ran off ($p = 0.01$), the effect becomes quite

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significant. $\overline{P}$ falls to $1080, or by 10 percent. When the probability went up to one out of twenty ($p = 0.05$), the price would have dropped to $760, or by 37 percent. And if the probability ever reached one out ten ($p = 0.10$), the value of all remaining slaves would have plummeted by over half to $550. Moreover, these reduced prices are biased upward because they incorporate no risk aversion on the part of slaveholders. That is, they make the unlikely assumption that slaveholders were indifferent between a certainty of earning $100 and a 50 percent chance of earning $200. Adding risk aversion, the collapse of slave prices would be still greater.

The successful runaway thus lowered the value of slaves who stayed behind. The more frequently slaves absconded, and the longer their absence, other things equal, the greater the fall in slave prices. Not every slave had to take off for the institution to be compromised. Just imagine how much investors would pay for shares of Microsoft stock, if a critical number of those shares might get up at any moment and run away. Southern planters were consequently quite concerned about the probability of successful escapes.

In addition to escape, there were many forms of passive resistance, and slaveholders and former slaves alike attest that American blacks tried them all. Shirking, working carelessly, faking illness, being absent, abusing tools and other property, committing petty "theft," and feigning stupidity or incompetence were all difficult to prevent or detect. Sometimes these would shade into more violent protests involving vandalism, arson, poisoning, or physical confrontation. Each of these stratagems helped to reduce the master's return from coercing his "troublesome property." They thereby subtly shifted his ideal mix of rewards and

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punishments toward positive incentives, bringing collective benefits for all slaves. If applied relentlessly and courageously enough, black recalcitrance could encroach on the peculiar institution's economic viability. A bondsman who could not be compelled to work very hard was not worth much.[8]

Outright insurrection was another way, the most emphatic of all, to increase slavery's enforcement costs. In 1800 a black bondsman named Gabriel, having imbibed Jeffersonian rhetoric, had carefully planned an attack on Richmond involving thousands of his compatriots, only to be betrayed by an informer. Possibly the most serious such outbreak involved several hundred slaves marching on New Orleans in 1811, although little is known beyond than the fact that the rebellion was utterly crushed. South Carolinians in 1822 uncovered Denmark Vesey's plot among some of Charleston's most trusted house servants and hanged thirty–five blacks. Nine years later Nat Turner led about seventy slaves on a bloody rampage through Southhampton County, Virginia. Yet slave rebellions in the United States were never as frequent, large, or successful as in the Caribbean and South America, a fact that has long intrigued historians.[9]

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[88]The phrase "a troublesome property" comes from a North Carolina planter and was used as the chapter title for Kenneth M. Stampp's pioneering discussion of this topic in *The Peculiar Institution: Slavery in the Ante–Bellum South* (New York: Alfred A. Knopf, 1956), p. 91. Very insightful on slave resistance generally is George M. Fredrickson and Christopher Lasch, "Resistance to Slavery," *Civil War History*, 13 (Dec 1967), 315–29, reprinted in one of the most useful collections on American slavery: Allen Weinstein and Frank Otto Gatell, eds., *American Negro Slavery: A Modern Reader*, 2nd edn., (New York: Oxford University Press, 1973).

[9]Herbert Aptheker, *American Negro Slave Revolts* (New York: Columbia University Press, 1943), is notoriously exaggerated on slave uprisings in the United States. Joseph C. Carroll, *Slave Insurrections in the United States, 1800–1865* (Boston: Chapman & Grimes, 1938), is more reliable. Douglas R. Egerton, *Gabriel's Rebellion: The Virginia Slave Conspiracies of 1800 and 1802* (Chapel Hill: University of North Carolina Press, 1993), unearths this early outburst from obscurity and misconception, whereas James Sidbury, *Ploughshares into Swords: Race, Rebellion, and Identity in Gabriel's Virginia, 1730–1810* (Cambridge, UK: Cambridge University Press,

One major difference between the American South and other slave societies in the New World was that only in the states of South Carolina and Mississippi did slaves ever constitute a majority of the population, whereas in the British and French Caribbean, blacks were 90 percent of inhabitants from 1770 on. Those economies, dependent upon slave imports, always contained a large number born in Africa and a preponderance of males. Native–born blacks, in contrast, had dominated the sexually balanced slave population in British North America since the end of the seventeenth century, and by 1860 they were all but one percent. U.S. slaves were also in closer proximity with whites. Nearly half worked on holdings of twenty or fewer slaves, whereas in Jamaica, on the eve of emancipation, one–third of the slaves worked on plantations of 200 or more, and three–quarters on plantations of at least 50. North American blacks often lived and toiled side-by-side with resident masters. Many Caribbean planters were absentee owners, residing as far away as the mother country. Their large holdings were managed by hired agents and overseers, who had less incentive to maximize the slave's long–term capital value and more to go after short–term revenues. All

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1997), explores its social context and consequences. On Denmark Vesey's rebellion, see John Lofton, *Denmark Vesey's Revolt: The Slave Plot that Lit a Fuse to Fort Sumter* (Kent, OH: Kent State University Press, 1983) [a reprint, with an added preface, of Lofton's *Insurrection in South Carolina: The Turbulent World of Denmark Vesey* (Yellow Springs, OH: Antioch Press, 1964)] and William W. Freehling, "Denmark Vesey's Antipaternalistic Reality," in Freehling, *The Reintegration of American History: Slavery and the Civil War* (New York: Oxford University Press, 1994). Stephen B. Oates, *The Fires of Jubilee: Nat Turner's Fierce Rebellion* (New York: Harper & Row, 1975), is probably best on that episode.

of these factors supplied fewer opportunities and provocations for servile insurrection in the United States.[10]

Economic theory suggests that any rebellion faces a severe problem with free riders. Overturning a slave system presumably benefits all held in bondage, whether they participated in the rebellion or not. Since revolutionary activity entails enormous personal risks, each individual slave had an incentive to free ride on the revolutionary activity of others. Rather than wonder why slave revolts were so few, we should marvel that they took place at all. The only fully successful servile insurrection in all of human history was the one in Haiti[11]. Escape, on the other hand, was a form of resistance that concentrated nearly all its gains on the individual runaway, except for some external gains that arose when more frequent running away drove up slavery's security costs.

II

The American Revolution had already provided a devastating demonstration of how runaways could undermine slavery. Virginia's royal governor on November 7, 1775, proclaimed free any slave who would bear arms against the rebellious colonists. At least 18,000 liberated blacks accompanied British forces as they evacuated Savannah, Charleston, New York City, and other places at the end of the war. South Carolina, the only colony with a slave majority

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[10]Eugene D. Genovese, *From Rebellion to Revolution: Afro–American Slave Revolts in the Making of the New World* (Baton Rouge: Louisiana State University Press, 1979), tries to answer the question of why there were fewer slave revolts in the United States.

[11]The major impact of Haiti's revolution on attitudes about slavery within the United States is well covered in Alfred H. Hunt, *Haiti's Influence on Antebellum America: Slumbering Volcano in the Caribbean* (Baton Rouge: Louisiana State University Press, 1988).

when independence was declared, lost as much as one–third of its black population to flight or migration.[12]

The predominately rural South was not all that densely populated to begin with, especially along the frontier. The number of persons per square mile did not increase within the areas of settlement much beyond the twelve that prevailed nationwide during the War of 1812, while the North had reached an average of nearly thirty per square mile by the 1850s.[13] One major reason that native Americans proved less desirable as slaves than Africans was because it was so much easier for natives to disappear into a wilderness they already knew well. Colonial Massachusetts and South Carolina collected lots of captives during Indian wars, but most were sold to the West Indies, where escape was harder.[14] As late as the 1850s, inaccessible parts of the South, although rapidly receding, harbored some maroon colonies, groups of fugitive blacks who remained at large for years. Individuals most frequently ran off for short periods, either hiding out

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[12]Philip D. Morgan, "Black Society in the Lowcountry, 1760–1810," in Ira Berlin and Ronald Hoffman, eds., *Slavery and Freedom in the Age of the American Revolution* (Charlottesville: University Press of Virginia, 1983); Alan Kulikoff, "Uprooted Peoples: Black Migrants in the Age of the American Revolution, 1790–1820," in *ibid.*; Sylvia R. Frey, *Water from the Rock: Black Resistance in a Revolutionary Age* (Princeton, NJ: Princeton University Press, 1991); Peter Kolchin, *American Slavery: 1619–1877* (New York: Hill and Wang, 1993), pp. 63–76.

[13]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series A172–194, A195–209, A210–263, pp. 22–39. The nineteen states admitted into the Union up until 1816 had an area of 575,278 square miles and a population in 1810 of 7,162,000. By 1850 the fifteen northern free states (not counting California) embraced an area of 462,925 square miles and a population of 13,343,000. The area of the fifteen slave states in 1850 was 877,637 square miles and their population was 9,665,000. The 1850 southern population density is biased somewhat downward because it includes the vast reaches of Texas, but then again it also includes the border cities of Baltimore, Washington, and St. Louis, which might more appropriately be left out.

[14]Almon Wheeler Lauber, *Indian Slavery in Colonial Times Within the Present Limits of the United States* (New York: Columbia University, 1913).

in the woods, swamps, or other impenetrable terrain, or visiting neighboring holdings where they might have friends or family. Without the system of slave patrols, local runaways would have been more numerous.[15]

But slave patrols alone could not dim the allure of fleeing permanently to a free state. Hence Southerners had insisted that the United States Constitution require return of runaways even from states that had abolished slavery. Escaping bondsmen would then fear recapture in the North. Although Anglo–Americans had been returning each other's fugitives since the colonial period, this traditional practice had always depended solely upon good will or comity among autonomous jurisdictions.[16] Article IV, Section 2, of the new Constitution therefore provided: "No person held to Service or Labour in one State, under the Laws thereof, escaping into another, shall, in Consequence of any Law or Regulation therein, be discharged from such Service or Labour, but shall be delivered up on Claim of the Party to whom such Service or Labour may be due."[17] The wording was inspired in part by a similar provision that the

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[15]John Hope Franklin and Loren Schweninger, *Runaway Slaves: Rebels on the Plantation* (New York: Oxford University Press, 1999), is the most recent and thorough investigation of this topic but still valuable are Eugene D. Genovese, *Roll, Jordon, Roll: The World the Slaves Made* (New York: Pantheon Books, 1974), pp. 648–57, and Leslie Howard Owens, *This Species of Property: Slave Life and Culture in the Old South* (New York: Oxford University Press, 1976), pp. 70–105. On maroon bands in the South, see Herbert Aptheker, "Slave Guerilla Warfare," in Aptheker, *To Be Free: Studies in American Negro History*, 2nd edn. (New York: International, 1968).

[16]Colonial and interstate rendition of runaways prior to the Constitution is covered in Marion Gleason McDougall, *Fugitive Slaves (1619–1865)* (Boston: Ginn, 1891), pp. 1–14. She also provides on pp. 89–103 an appendix of colonial laws relating to fugitives.

[17]Donald R. Robinson, *Slavery and the Structure of American Politics, 1765–1820* (New York: Harcourt Brace Jovanovich, 1971), pp. 228–30, 244–5; William M. Wiecek, *The Sources of Antislavery Constitutionalism in America, 1760–1848* (Ithaca: Cornell University Press, 1977), pp. 78–80; Wiecek, "The Witch at the Christening: Slavery and the Constitution's Origins," in Leonard W. Levy and Dennis J. Mahoney, eds., *The Framing and Ratification of the Constitution*

Confederation Congress—meeting in New York about the same time as the Constitutional Convention was meeting in Philadelphia—had inserted into the Northwest Ordinance of 1787. The ordinance prohibited slavery in the western territories north of the Ohio river but its sixth article also ensured that "any person escaping into the same, from whom labor or services is lawfully claimed in any one of the original States, such fugitive may be lawfully reclaimed, and conveyed to the person claiming his or her labor or service as aforesaid."[18]

Just as the compulsory patrol imposed slavery's enforcement costs on non–slaveholders in the South, the fugitive slave clause imposed these costs on Northerners. It was the prime way the United States government subsidized the peculiar institution. Congress initially passed legislation enforcing the fugitive slave clause in 1793, at the end of President George Washington's first term. The recovery of runaways was put under joint supervision of national and state courts.

(New York: Macmillan, 1987); and Paul Finkelman, "Slavery and the Constitutional Convention: Making a Covenant with Death," in Richard Beeman, Stephen Botein, and Edward C. Carter II, eds., *Beyond Confederation: Origins of the Constitution and National Identity* (Chapel Hill: University of North Carolina Press, 1987), reprinted and revised under the title, "Making a Covenant with Death: Slavery and the Constitutional Convention," in Finkelman, *Slavery and the Founders: Race and Liberty in the Age of Jefferson* (Armonk, NY: M. E. Sharpe, 1996). Examine also Staughton Lynd's two essays, "The Abolitionist Critique of the United States Constitution" and "The Compromise of 1787" in *Class Conflict, Slavery, and the United States Constitution: Ten Essays* (Indianapolis: Bobbs–Merrill, 1967). But a less strident assessment of the Constitution's pro–slavery features is William W. Freehling, "The Founding Fathers, Conditional Antislavery, and the Nonradicalism of the American Revolution," in Freehling, *The Reintegration of American History*.

[18]"The Northwest Ordinance," 13 Jul 1787, in Francis Newton Thorpe, *Federal and State Constitutions: Colonial Charters, and Other Organic Laws of the States, Territories, and Colonies, Now or Heretofore From the United States of America* (Washington: Government Printing Office, 1909), v. 2, pp. 957–62; Paul Finkelman, "Evading the Ordinance: The Persistence of Bondage in Indiana and Illinois," *Journal of the Early Republic*, 9 (Spring 1989), 21–52, reprinted as "Slavery and the Northwest Ordinance: A Study in Ambiguity" in Finkelman, *Slavery and the Founders*.

Not only did the free states willingly cooperate, but many of them allowed Southerners to bring along slaves on visits, sometimes for up to nine months.[19]

Radical abolitionists put this first Fugitive Slave Law under fire during the 1830s and 1840s. They legally challenged it in the courts and illegally evaded it. The illegal evasion led to the famous underground railroad, in which white abolitionists and free blacks spirited runaway slaves to freedom in Canada. Celebrated are the exploits of Harriet Tubman, who after escaping from bondage herself returned repeatedly to Maryland's Eastern Shore to bring out others. The free blacks (as well as fellow slaves) responsible for the bulk of such assistance, however, remain mostly unsung. Better remembered are the underground railroad's smaller number of white operatives, a few of whom hazarded serious dangers. Calvin Fairbanks, an Oberlin graduate, went south again and again, despite a first sentence that confined him for five years, until he was apprehended a second time. He languished in a Kentucky prison for another twelve years, finally gaining release at the Civil War's close. Charles Turner Torrey, a New England minister, is credited with rescuing four hundred slaves from Virginia before being caught and dying in jail in 1846.[20]

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[19]Passage of the first fugitive slave law is covered in Paul Finkelman, "The Kidnapping of John Davis and the Adoption of the Fugitive Slave Law of 1793," *Journal of Southern History*, 56 (Aug 1990), 397–422; reprinted under the title "Implementing the Proslavery Constitution: The Adoption of the Fugitive Slave Law of 1793," in Finkelman, *Slavery and the Founders*. For additional legal and constitutional issues related to fugitive slaves, see Finkelman, *An Imperfect Union: Slavery, Federalism, and Comity* (Chapel Hill: University of North Carolina Press, 1981). The actual text of the law is (12 Feb 1793) 1 *U.S. Statutes at Large* 303–5.

[20]The most oft cited work on the underground railroad, Larry Gara, *The Liberty Line: The Legend of the Underground Railroad* (Lexington: University of Kentucky Press, 1961), contends that its accomplishments were highly overrated. But Gara seems to have an anti–abolitionist ax to grind, and it is surprising that his findings have been accepted so uncritically, especially after the dean of historians of abolitionism, Louis Filler, in his review of Gara's book, *Mississippi Valley Historical*

The legal challenges induced several northern legislatures to pass personal liberty laws. These laws tried to prevent the kidnapping and enslavement of northern free blacks by granting alleged fugitives such rights as *habeas corpus* and trial by jury.[21] One case arising under these laws finally found its way to the Supreme Court in 1842. The Court's decision in *Prigg vs. Pennsylvania* was a pro– and antislavery mixture.[22] It granted slaveholders the right to recapture slaves using private force, without going through any legal process, state or federal. The Constitution "manifestly contemplates the existence of a positive, unqualified right on the part of the owner of the slave, which no state law or regulation can in any way qualify, regulate, control, or restrain," wrote Justice Joseph Story in rendering the Court's opinion: "Upon this ground we have not the slightest hesitation in holding that . . . the owner of a slave is clothed with the

Review, 48 (Dec 1961), 523–4, expressed grave reservations, finding it "unlikely to content the numerous investigators whose articles and new evidence continue to underwrite the view that the underground railroad was as real and important as the sponsors of the Fugitive Slave Act believed." Gara dismisses the earlier, more glowing volumes, Wilbur H. Siebert, *The Underground Railroad from Slavery to Freedom* (New York: Macmillan, 1898), and William Still, *The Underground Rail Road: A Record of Facts, Authentic Narratives, Letters, etc., Narrating the Hardships, Hair–Breadth Escapes and Death Struggles of the Slaves in Their Efforts for Freedom* (Philadelphia: Porter & Coates, 1872), but Siebert and Still did have the one advantage of interviewing actual participants. One book on the subject to appear since Gara's is Charles L. Blockson, *The Underground Railroad* (New York: Prentice Hall, 1987), a solid compilation of case histories. Also Stanley Harrold, *The Abolitionists and the South, 1831–1861* (Lexington: University Press of Kentucky, 1995), has an excellent chapter on those abolitionists who risked capture below the Mason–Dixon line to rescue slaves.

[21]Thomas D. Morris, *Free Men All: The Personal Liberty Laws of the North, 1780–1861* (Baltimore: Johns Hopkins University Press, 1974), pp. 1–93.

[22]Paul Finkelman, "*Prigg* v. *Pennsylvania* and Northern State Courts: Anti–Slavery Uses of a Pro–Slavery Decision," *Civil War History*, 25 (Mar 1979), 5–35, reprinted in Kermit L. Hall, ed., *The Law of American Slavery: Major Historical Interpretations* (New York: Garland, 1987); Finkelman, "Sorting out *Prigg* v. *Pennsylvania*," *Rutgers Law Journal*, 24 (Spring 1993), 605–65; and Finkelman, "Story Telling on the Supreme Court: Prigg v. Pennsylvania and Justice Joseph Story's Judicial Nationalism," *Supreme Court Review* (1994), 247–94. For the legal dilemma confronting antislavery judges, see Robert M. Cover, *Justice Accused: Antislavery and the Judicial Process* (New Haven: Yale University Press, 1975).

entire authority, in every State in the Union, to seize and recapture his slave, whenever he can do it without any breach of the peace, or any illegal violence."[23] The Pennsylvania law that treated such private seizures as kidnapping was therefore struck down.

In another part of his opinion, however, Story conceded that the state governments were under no positive obligation to assist enforcement of the fugitive slave provision. Seven northern legislatures responded with a new round of legislation that either prohibited state officials from participating in a recapture or forbade holding fugitive slaves in state or local jails. By the time of the Civil War, Illinois was the only free state that had not enacted a personal liberty law of some sort.[24] Such hostile statutes could severely impede the slaveholder's legal privilege to head north and personally retrieve his chattel. That is why Southerners demanded a tougher fugitive slave law. Preventing flight was of dire importance to the slave system. If blacks could simply obtain freedom by slipping across an open border, enforcement throughout the upper South was compromised, and the lower South would feel the repercussions.

This long–standing southern concern about runaways had been one motive for U.S. acquisition of the Floridas immediately before and after the War of 1812. Spain had not outlawed slavery there, but slaveholders found it less convenient to hunt down fugitives in this unsettled borderland so long as it was under foreign

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[23]"Prigg *v.* The Commonwealth of Pennsylvania," 16 *Peters* 539 (1842).

[24]Morris, *Free Men All*, pp. 94–129.

jurisdiction.[25] Similar concerns led the national government two decades later to initiate the army's most costly and protracted Indian war, against Florida's Seminoles, who provided safe refuge to runaways.[26] It goes almost without saying that when the Missouri Compromise of 1820 closed to slavery all of the Louisiana Territory north of 36°30', except for the new slave state of Missouri, a fugitive slave proviso was part of the enabling act.[27]

The worry about fugitive slaves would continue to gnaw at the southern psyche during every sectional crisis from the annexation of Texas up through Fort Sumter. Stephen F. Austin had helped lead the settlement of U.S. citizens within Mexico's province of Texas during the 1820s. At the outset of the Texas Revolution in 1835, Austin wrote his cousin that: "*Texas must be a slave country. It is no longer a matter of doubt.* The interest of Louisiana requires that it should

[25]Aptheker, *American Negro Slave Revolts*, pp. 30–1, and Bruce Edward Twyman, *The Black Seminole Legacy and North American Politics, 1693–1845* (Washington: Howard University, 1999), pp. 73–112. Although Aptheker's study does not always carefully distinguish the southern fears of insurrection versus runaways, it contains much valuable information on the latter subject. One of the first to emphasize the role of fugitive slaves in U.S. policy toward Florida was the abolitionist Congressman Joshua R. Giddings in *The Exiles of Florida . . .* (Columbus, OH: Follett, Foster, 1858).

[26]Kenneth W. Porter, "Florida Slaves and Free Negroes in the Seminole War, 1835–1842," *Journal of Negro History*, 27 (Oct 1943), 390–421; Porter, "Negroes and the Seminole War, 1835–1842," *Journal of Southern History*, 30 (Nov 1964), 427–50; John K. Mahon, *History of the Second Seminole War, 1835–1842* (Gainesville: University of Florida Press, 1967); Porter, *The Black Seminoles: History of a Freedom–Seeking People* (Gainesville: University Press of Florida, 1996), pp. 25–107; Francis Paul Prucha, *The Sword of the Republic: The United States Army on the Frontier, 1783–1846* (New York: Macmillan, 1969), pp. 269–73; and Twyman, *The Black Seminole Legacy and North American Politics*, pp. 113–55.

[27](6 Mar 1820), 9 *Statutes* 548.

be, a population of fanatical abolitionists in Texas would have a very pernicious and dangerous influence on the overgrown slave population of that state."[28]

Once an independent Texas first applied to join the Union the following year, adding potentially five new slave states, the hue and cry of northern opponents of slavery temporarily blocked annexation. Eventually the rebuffed Texans began to think about assuming a truly independent stature among the world's powers. What made this prospect unnerving to Southerners was the increasingly intimate ties between Texas and Britain. The British government was in the forefront of the worldwide crusade against slavery. British influence might induce Texas to abolish the institution, whereupon runaway slaves would have a new haven, and British mills would have a new source of cotton other than the slaveholding South.[29] Former President Andrew Jackson of Tennessee was now a staunch supporter of annexation partly because of just these fears. "Would not . . . our slaves in the great valley of the Mississippi [be] worth nothing, because they

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[28]Austin to Mrs. Mary Austin Holley, 21 Au 1835, Eugene C. Barker, ed., *The Austin Papers* (Austin: University of Texas, 1924–6), v. 3, pp. 101–2.

[29]Justin H. Smith's old standby on *The Annexation of Texas*, corrected edn., (New York: Barnes & Noble, 1941), has been supplemented by much additional scholarship. Frederick W. Merk zeroes in on slavery's impact on the politics of annexation in *Slavery and the Annexation of Texas* (New York: Alfred A. Knopf, 1972); whereas Randolph B. Campbell, *An Empire for Slavery: The Peculiar Institution in Texas, 1821–1865* (Baton Rouge: Louisiana State University Press, 1989), details slavery's internal role within Texas itself during colonization, the revolution, and statehood. Unlike Merk, however, I find southern alarm about British induced abolition in Texas to be quite genuine rather than mere administration propaganda. See also the discussion in David Brion Davis, *Slavery and Human Progress* (New York: Oxford University Press, 1984), pp. 237–9, and William W. Freehling, *The Road to Disunion*, v. 1, *Secessionists at Bay, 1776–1854* (New York: Oxford University Press, 1990), pp. 353–452. An outstanding diplomatic history that successfully integrates the policies of all major participants over the questions of Texas and Oregon is David M. Pletcher, *The Diplomacy of Annexation: Texas, Oregon, and the Mexican War* (Columbia: University of Missouri Press, 1973).

would all run over to Texas, and under British influence, [be] liberated and lost to their owners[?]"[30]

By 1844, John C. Calhoun of South Carolina, serving as Secretary of State, had determined that now was the time for moving heaven and earth to bring Texas into the Union. He warned that: ". . . while England . . . desires the independence of Texas, with the view to commercial connections, it is not less so that one of the leading motives . . . is the hope, that, through her diplomacy and influence, negro slavery may be abolished there, and ultimately, by consequence, in the United States and throughout the whole of this continent."[31] Like Jackson, Calhoun believed that an abolitionized Texas would be a beacon to fugitive slaves.

Once Texas joined the Union in 1845, it still faced its own fugitive problem on the border with Mexico, a nation where slavery was outlawed. This southern boundary, although not as porous and hospitable as the Mason–Dixon line, still could tempt runaways. By 1851 an estimated three thousand slaves had fled across the Rio Grande, with another thousand following in the next four years. The Seminole chief Wild Cat had already established in Coahuila one of several military colonies of Indians and former slaves within Mexico's boundaries.[32] Frederick Law Olmsted concluded that the proximity to this

[30]Jackson to Major William B. Lewis, 8 Apr 1844, John Spencer Bassett, ed., *Correspondence of Andrew Jackson* (Washington: Carneige Institution of Washington, 1926–33), v. 6, p. 278.

[31]Calhoun to William R. King, 12 Aug 1844, Robert L. Meriwether, *et. al.*, eds., *The Papers of John C. Calhoun* (Columbia: University of South Carolina Press, 1959–), v. 19, pp. 571–6.

[32]Ronnie C. Tyler, "Fugitive Slaves in Mexico," *Journal of Negro History*, 57 (Jan 1972), 1–12; Campbell, *An Empire for Slavery*, p. 63; Porter, *The Black Seminoles*, pp. 124–71..

boundary "will go far to prevent" that portion of Texas near the San Antonio
River "from becoming a great enslaved planting country." He observed that
"runaways were *constantly* arriving [emphasis original]" in Piedras Negras, across
the Rio Grande from Eagle Pass.[33]

The Texas legislature had mandated in January, 1844, while the state was
still independent, a special $50 fee for anyone capturing an escaped slave west of
the San Antonio River, to be paid either by the owner or from sale of the slave.
After annexation the Lone Star state requested that the U.S. government negotiate
a slave extradition treaty with Mexico, although all efforts to do so came to
naught. So in 1858, the state's legislature upped the reward for "any slave or
slaves who may have escaped beyond the limits of the slave territories of the
United States" to one–third of the slave's value, payable at Austin from the state
treasury.[34]

Because the Mexican border was relatively remote, the peculiar institution
still managed to expand in the Southwest throughout the antebellum years. The
Texas slave population rose from a mere 13 percent at the time of the Texas
Revolution to 27 percent in 1850.[35] On the other hand, slavery was retreating

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[33]Frederick Law Olmsted, *A Journey through Texas or, A Saddle–Trip on the Southwestern Frontier* (New York: Dix, Edwards, 1857), pp. 136, 324.

[34]H. P. N. Gammel, ed., *The Laws of Texas, 1822–1897* (Austin: Gammel, 1898), v. 2, pp. 950–1, v. 4, p. 1074; Campbell, *An Empire for Slavery*, pp. 63, 108–9.

[35]According to Campbell, *An Empire for Slavery*, p. 54, the best estimate of Texas population in 1836 is 30,000 Anglos, 5,000 black slaves, 3,470 free Mexicans, and 14,500 Indians. The Indians were excluded in calculating the percentage of slaves. The 1850 percentage is from the U.S. Census, which reported a Texas population of 213,000, of whom 58,000 were slaves: [U.S.] Bureau of the Census, Department of Commerce, *Negro Population: 1790–1915* (Washington: Government Printing Office, 1981), p. 57; U.S. Bureau of the Census, *Historical Statistics of the United States*, pt. 1, series A195–209, p. 35.

along the border with the free states and from the cities. Delaware, Maryland, Kentucky, Missouri, and the western counties of Virginia had seen the proportion of slaves out of their total populations steadily decline after 1830, whereas the proportion for the South overall remained a fairly constant one–third (Table 6.1). Only in Kentucky was the percentage not approaching or already well below that of New York (10–12 percent) at the time of the American Revolution.[36] Yet even in Kentucky, when voters chose delegates for a state constitutional convention in 1849, a full tenth of them supported a gradual–emancipation plan similar to the one earlier adopted in New York.[37]

The runaway made a major contribution to slavery's erosion in the border South. One Virginian who served both in his state legislature and Congress, Charles James Faulkner, understood quite well the implications of Pennsylvania's new personal liberty law:

> [It] has rendered our slave property . . . utterly insecure. . . . slaves are absconding from Maryland and this portion of Virginia in gangs of tens and twenties and the moment they reach the Pennsylvania line, all hopes of their recapture are abandoned. The existence of such a law on the Statute Book of any State is not only a flagrant violation of the spirit of the Federal Constitution and indeed of its *express provisions*, but is a deliberate *insult* to the whole Southern people, which . . . would amongst

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[36]I owe this insight to Freehling, "The Founding Fathers, Conditional Antislavery, and the Nonradicalism of the American Revolution," pp. 28–9. New York's colonial population figures are in U.S. Bureau of the Census, *Historical Statistics of the United States*, pt. 2, series Z1–19, p. 1168.

[37]Asa Earl Martin, *The Anti–Slavery Movement in Kentucky Prior to 1850* (Louisville: Filson Club, 1918); Lowell H. Harrison, *The Antislavery Movement in Kentucky* (Lexington: University Press of Kentucky, 1978); Freehling, *The Road to Disunion*, v. 1, pp. 462–9.

nations wholly independent and disconnected by Federal Relations be a *just cause of War* [emphasis original].[38]

Faulkner and other Southerners probably exaggerated the number escaping to the free states, but no one knows for sure. As we will observe below, the accepted estimate is not less than a thousand per year, although many more tried and failed. The only certainty is that without a fugitive slave law, the number would have soared. Since the Constitution explicitly required their return, we can appreciate why William Lloyd Garrison and so many other radical abolitionists called for disunion. They believed that northern secession represented an effective way to eliminate this subsidy to slaveholders. It could turn the North into an asylum for runaways.

Joseph Rogers Underwood, representing Kentucky in the House of Representatives, shared Garrison's assessment. After Congressman John Quincy Adams of Massachusetts submitted an abolitionist petition calling for "measures peaceably to dissolve the Union of these States" in early 1842, Underwood rose and warned his fellow Southerners that "the dissolution of the Union was the dissolution of slavery." His home state "had perhaps a deeper interest in this subject than any other, except Maryland and a small portion of Virginia." Why?

> Just as soon as Mason and Dixon's line and the Ohio river become the boundary between two independent nations, slavery ceases in all the border states. How could we retain our slaves, when they, in one hour, one day, or a week at furthest, could pass the boundary.

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[38]Faulkner to John C. Calhoun, 15 Jul 1847, Chauncey C. Boucher and Robert P. Brooks, eds., *Correspondence Addressed to John C. Calhoun, 1837–1849* (Washington: American Historical Association, 1929), pp. 385–87.

Once across, the slave could "then turn around and curse his master from the other shore." Nor would the peculiar institution's collapse stop at the border states.

Do you not see that sooner or later, this process would extend itself farther and farther south, rendering slave labor so precarious and uncertain that it could not be depended upon; and consequently a slave would become almost worthless; and thus the institution itself would gradually, but certainly, perish?[39]

Slavery flourished because the country's political and legal structure socialized its enforcement costs. Like the income enjoyed by any industry that depends on subsidies from the U.S. government, the economic viability of the peculiar institution rested partly on political power. Removing the free states out from under the Constitution's fugitive slave provision would at first undermine slavery in the upper South. But the lower South faced a potentially fatal domino effect. Once the supports provided by local, state, and central governments were knocked out, a combination of market forces and a black thirst for liberty could bring the system down.

The planter oligarchy had far too much at stake to let those props go easily. Again, let us quote Faulkner, our legislator from Virginia:

No proposition can be plainer than that the slaveholding interest in this country is everywhere one and the same. An attack upon it *here* is an attack upon it in South Carolina and Alabama. Whatever weakens and impairs it *here* weakens and impairs it *there*. The fanaticism of Europe and

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[39]*Congressional Globe*, 27th Cong., 2nd sess. (27 Jan 1842), pp. 178, 181; appendix, p. 238. The *Globe*'s body and appendix contain slightly different versions of Underwood's remarks, and I have freely quoted from both.

North America is embarked on a crusade against it. We must stand or fall together.[40]

III

As with so much else about American slavery, the number of actual runaways is shrouded in mystery and contention. Some southern politicians exaggerated their estimates for obvious polemical motives. Governor John A. Quitman of Mississippi went so far as to put the total who had fled northward at 100,000 over a forty–year period.[41] The available census data belie such claims. The free black population in the North increased 98 percent between 1820 and 1850, more slowly than the slave population (108 percent) although faster than the free black population in the South (77 percent).[42] Despite the fact that runaways were predominately male, the returns indicate that a slight majority of northern blacks were women.[43] If the more fragmentary Canadian censuses are to be believed, fewer than 9,000 blacks immigrated to that country in the decade

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[40]Faulkner to Calhoun, 15 Jul 1847, Boucher and Brooks, eds., *Correspondence Addressed to John C. Calhoun, 1837–1849*, pp. 385–87.

[41]J[ohn]. F[rancis]. H[awtramek]. Claiborne, *Life and Correspondence of John A. Quitman: Major–General, U.S.A., and Governor of the State of Mississippi* (New York: Harper & Brothers, 1860), v. 2, p. 28.

[42]The number of free blacks in the free states was 99,307 in 1820; 196,308 in 1850; and 226,152 in 1860. The number of free blacks in the slave states was 134,327 in 1820; 238,137 in 1850; and 261,918 in 1860. The number of slaves in the U.S. was 1,538,022 in 1820; 3,204,313 in 1850; and 3,953,760 in 1860. [U.S.] Bureau of the Census, Department of Commerce, *Negro Population: 1790–1915* (Washington: Government Printing Office, 1918), p. 57.

[43]The 1860 returns, for instance reported 110,016 free black males and 116,136 free black females in the free states; [U.S. Census Office, 1860 Census], *Population of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1864), pp. 594–5.

prior to the Civil War.[44] And annual runaways as reported in the U.S. Census (Table 6.2) stood at only 1,011 for 1850 and 803 for 1860.[45]

On the other hand, the census returns themselves are open to question. Early Canadian figures are notoriously inaccurate. The Dominion Bureau of Statistics came to believe that the Census of 1851 underenumerated the country's total population by as much as 100,000 souls.[46] Robin W. Winks has attempted the most thorough assessment of the number of Canadian blacks, and he notes a slew of problems. "At no time was the national census clear as to what was meant by 'Negro,'" as the classification system changed from census year to census year and even from region to region within a given year. The official figures for Upper Canada do not cover "the whole of the British North American Provinces," nor do they reflect the large number of blacks "passing as white" in Canada's "fluid city conditions." Although Winks discounts the contemporary claims of as many as 60,000 fugitive slaves throughout Canada in 1860, he cannot be sure and admits

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[44]The 1851 census for upper (western) Canada counted 4,669 blacks but estimated the total as high as 8,000: [Canada, Board of Registration and Statistics], *Census of the Canadas, 1851–2*, v. 1, *Personal Census* (Quebec: John Lovell, 1853), pp. 36–7, 317. The 1861 census counted 11,223, but 1871 official estimates raised that to 13,666: [Canada, Board of Registration and Statistics], *Census of the Canadas, 1860–1*, v. 1, *Personal Census* (Quebec: S. B. Foote, 1863), p. 79; [Canada, Board of Registration and Statistics], *Censuses of the Canadas, 1608 to 1876*, v. 5, *Statistics of Canada* (Ottawa: McLean, Roger, 1878), p. 18. The 1871 census also offered an estimate of 5,469 blacks in 1848: [Canada, Board of Registration and Statistics], *Censuses of the Canadas, 1665 to 1871*, v. 4, *Statistics of Canada* (Ottawa: I. B. Taylor, 1876), p. 169.

[45][U.S. Census Office, 1860 Census], *Statistics of the United States (Including Mortality, Property, etc.) in 1860: Compiled from the Original Returns and Being the Final Exhibit of the Eighth Census* (Washington: Government Printing Office, 1866), p. 338.

[46]M. C. Urquhart and K. A. H. Buckely, eds., *Historical Statistics of Canada* (Cambridge, UK: University Press, 1965), pp. 2–4. That underenumeration is out of total 1851 population of 2,436,297, or around 4 percent.

that at least 30,000 is likely.[47] Even the U.S. census is known to have undercounted up through 1940 black males by as much 13 percent.[48]

John Hope Franklin and Loren Schweninger, in their recent study of runaways, point out:

> A close examination of planters' records, runaway advertisements, county court petitions, and other primary sources reveals that it was an unusual planter (generally defined as one with twenty or more slaves) who could boast that none of his or her slaves had ever run off. Indeed, many confronted the problem at least once or twice a year, and a few struggled to control a plague of runaways. Nor was it uncommon for blacks to flee from slaveholders who owned fewer than twenty slaves.

Franklin and Schweninger therefore put the annual number of fugitives much higher than "the 'scientific' data provided in the United States Census":

> In 1860, there were about 385,000 slave owners in the South, among whom about 46,000 were planters. Even if only half of all planters experienced a single runaway in a year, and if only 10 or 15 percent of other slaveholders faced the same problem (both extremely conservative estimates) the number of runaways annually would exceed 50,000.[49]

But this exceedingly high estimate includes short–term episodes and unsuccessful attempts as well as successful escapes to the free states. Franklin and

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[47]Robin W. Winks, *The Blacks in Canada: A History*, 2nd edn. (Montreal: McGill–Queens University Press, 1997), pp. 485, 489, 488. Winks's general discussion of Canada's total black population is in his appendix, pp. 484–96, while his consideration of the number of fugitive slaves is pp. 233–44. Kenneth M. Stampp, *The Peculiar Institution*, p. 118, is one authority who finds 60,000 a "reasonable estimate" of the total number of fugitives lost by the slave states.

[48]Daniel O. Price, "A Check on Underenumeration in the 1940 Census," *American Sociological Review*, 12 (Feb 1947), 44–9. Price arrives at 13 percent after comparing the 1840 Census with selective service records.

[49]Franklin and Schweninger, *Runaway Slaves: Rebels on the Plantation*, p. 282.

Schweninger acknowledge that "most runaways remained out only a few weeks or months" and masters were usually "confident . . . about the return of their human property."[50] Because the census takers asked only about escaped slaves who remained at large, the figures in Table 6.2 probably offer our best *lower–bound* conjecture of annual flight into the free states. Even a historian as skeptical of the underground railroad's accomplishments as Larry Gara has pointed out that "[a]t best the United States figures gave an indication of how many fugitives had been *reported* by their owners to have run away permanently within a one–year period preceding the census [emphasis original]," and he later went so far as to concede that "official census figures *undoubtedly underestimated* the number when they indicated that about a thousand slaves a year escaped [emphasis added]."[51]

The official rate for 1859–60 comes to one out of every 5,000 slaves, or 0.02 percent. If close to accurate, this could be interpreted as showing that slaveholder complaints about the problem were symbolic rather than genuine. Or more plausibly, it could be interpreted as proving the effectiveness of the government enforcement of fugitive slave provisions. There are two respects, moreover, in which looking at the numbers this way is misleading. First, all slaves were not equally likely to run off. Infants and children, who provided very little income to their owners, did not pose much risk of this sort, nor did many bondswomen. The danger of escape was concentrated in prime–age males, who

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[50]*Ibid*.

[51]Gara, *The Liberty Line*, p. 38; Larry Gara, "The Fugitive Slave Law: A Double Paradox," *Civil War History*, 10 (Sep 1964), 230, n. 4.

constituted around 70 to 80 percent of all runaways in the samples of Franklin and Schweninger.[52] To get probabilities for that group, we must multiply the percentages in Table 6.2 by an approximate factor of five.[53] Second, rates differ markedly from state to state, with distance from the free states being a major determinant. In both 1850 and 1860, the three slave states with the highest rate of successfully runaways are Delaware, Maryland, and Missouri, in that order, whereas South Carolina, Alabama, and Georgia are among the bottom four in both years.

Once we make these two adjustments, we find that the *ex post* risk that a prime male slave might permanently abscond to the North from Delaware was 3.34 percent in 1860 (or one chance out of 30), and 5.68 percent in 1850 (or one out of 18). For Missouri the similar percentages were only 0.43 in 1860 and 0.34 in 1850. Yet compare those rates with South Carolina's, which are lower by a magnitude of one–tenth: 0.03 percent in 1860 and 0.02 percent in 1850. Although Delaware was a very small state, if we add its runaways to those of the other border states of Maryland, Virginia, Kentucky, and Missouri, they combine to more than half of all runaways for either year. In contrast, these five states contained less than a fourth of the total slave population in 1860.

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[52]Franklin and Schweninger, *Runaway Slaves: Rebels on the Plantation*, p. 210. See also Genovese, *Roll, Jordon, Roll*, pp. 648, 798.

[53]Multiply by two to eliminate females and divide by 0.4 to concentrate on prime ages. The demographic profile of each state varied, of course. In general, slave importing states had a higher proportion of prime–age males, so this procedure will bias the fugitive risk slightly upward for them and slightly downward for slave exporting states.

Regional slave prices reflected these enormous variations in risk. There are basically five sets of data on U.S. slave prices or slave rentals over time and across distances: (1) Ulrich B. Phillips compiled prices for four trading areas covering the period 1795–1860.[54] (2) Robert Evans subsequently collected some additional prices but mainly hire rates, particularly for slaves working on railroads.[55] (3) Robert Fogel and Stanley Engerman combed both probate records and bills of sale for their massive study of slave prices (and thereby discovered some upward bias in Phillips's series).[56] (4) Claudia Dale Goldin gathered both prices and hire rates for urban slaves. Goldin, like Fogel–Engerman, found that

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[54]Price data first appeared in U. B. Phillips, *American Negro Slavery: A Survey of the Supply, Employment and Control of Negro Labor as Determined by the Plantation Regime* (New York: D. Appleton, 1918), pp. 368–71. Phillips later made slight revisions for *Life and Labor in the Old South* (Boston: Little, Brown, 1929), p. 177. Phillips presented this data in graphical form, but Alfred H. Conrad and John R. Meyer visually rendered his New Orleans prices into numbers in *The Economics of Slavery and Other Studies in Econometric History* (Chicago: Aldine, 1964), p. 76. Phillips also provided numerical quotations for Georgia for scattered years in "The Economic Cost of Slaveholding in the Cotton Belt," *Political Science Quarterly*, 20 (Jun 1905), 257–75.

[55]Robert Evans, Jr., "The Economics of American Negro Slavery," in National Bureau of Economic Research, *Aspects of Labor Economics: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton, NJ: Princeton University Press, 1962), pp. 197–202. Evans also visually rendered Phillips's price series into numerical form, but unlike Conrad and Meyer, did so for all four trading areas rather than just New Orleans.

[56]Unfortunately, very little of the Fogel–Engerman price data has been published in raw form. Using their data, Susan Previant Lee presented some comparative prices for the Old and New South in both 1850 and 1860 in her published dissertation, *The Westward Movement of the Cotton Economy, 1840–1869: Perceived Interests and Economic Realities* (New York: Arno Press, 1977), pp. 77–80. Average prices for New Orleans appear in Laurence J. Kotlikoff, "The Structure of Slave Prices in New Orleans, 1804 to 1862," *Economic Inquiry*, 17 (Oct 1979), 498, and Kotlikoff, "Quantitative Description of the New Orleans Slave Market, 1804 to 1862," in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992), p. 35. Roger Ransom and Richard Sutch reproduce some refined Engerman estimates of New Orleans prices (which unlike Kotilikoff's estimates, exclude slaves with skills and handicaps) in "Capitalists Without Capital: The Burden of Slavery and the Impact of Emancipation," *Agricultural History*, 62 (Summer 1988), 155–6. Claudia Dale Golden, in the work cited in the next footnote, also provides raw prices based on Fogel and Engerman.

"sale prices are about 20 percent higher than the appraised data, probably due to the incentives of the inheritance tax."[57] (5) Michael Tadman looked at prices in trade circulars and reports.[58]

Of these five sets, only Tadman's provides no evidence on regional variations. The most well studied price differential is the one between the eastern (Old South) and western (New South) slave states.[59] Since slaves were being moved in large numbers into the Southwest, this differential—averaging 46 percent above the Old South price—comes as no surprise. It had to be high enough to cover transport, foregone earnings, and other transaction costs arising from westward migration. The analysis of Danghyu Yang and Gerald Freidman indicates that the differential actually exceeded those costs by about 8 percent.[60]

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[57]Claudia Dale Goldin, *Urban Slavery in the American South, 1820–1860: A Quantitative History* (Chicago: University of Chicago Press, 1976), p. 69.

[58]Michael Tadman, *Speculators and Slaves: Masters, Traders, and Slaves in the Old South* (Madison: University of Wisconsin Press, 1989), pp. 287–91.

[59]Peter Passell and Gavin Wright, "The Effects of Pre–Civil War Territorial Expansion on the Price of Slaves," *Journal of Political Economy*, 80 (Nov/Dec 1972), 1188–1202; Richard Sutch, "The Breeding of Slaves for Sale and the Westward Expansion of Slavery, 1850–1860," in Stanley L. Engerman and Eugene D. Genovese, eds., *Race and Slavery in the Western Hemisphere: Quantitative Studies* (Princeton, NJ: Princeton University Press, 1975); Lee, *The Westward Movement of the Cotton Economy, 1840–1860*; Laurence J. Kotlikoff and Sebastian E. Pinera, "The Old South's Stake in the Inter–Regional Movement of Slaves, 1850–1860," *Journal of Economic History*, 37 (Jun 1977), 434–50, reprinted in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1; Lee, "Antebellum Land Expansion: Another View," *Agricultural History*, 52 (Oct 1978), 488–502; Mark Schmitz and Donald Schaefer, "Paradox Lost: Westward Expansion and Slave Prices before the Civil War," *Journal of Economic History*, 41 (Jun 1981), 402–7; Gerald Friedman and Ralph A. Galantine, "Regional Markets for Slaves and the Interregional Slave Trade," in Robert W. Fogel, Galantine, and Richard L. Manning, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Evidence and Methods* (New York: W. W. Norton, 1992), pp. 195–99.

[60]Danghyu Yang and Gerald Freidman, "Some Economic Aspects of the Southern Interregional Migration, 1850–1860," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract: Evidence and Methods*, p. 263.

Largely ignored, however, is the price differential between the northern (Upper South) and southern (Lower South) slave states. Indeed, because the Upper South state of Virginia is usually lumped together with the Lower South state of South Carolina in calculating Old South averages, whereas New South averages never include Missouri or Kentucky, estimated gradients in east–west prices probably capture a north–south component as well.[61]

If we examine Phillips's series in Table 6.3 for prime male hands from 1830 to 1860, we find that prices in Charleston were consistently above prices in Richmond, usually by about 10 percent. Between 1836 and 1840, the disparity peaked at 17.0 percent while between 1856 and 1860, it fell to 6.5 percent. Table 6.4 reproduces some of Fogel and Engerman's rural price data, as reported by Goldin. It covers the four Atlantic slave states of Maryland, Virginia, North Carolina, and South Carolina by decade (with some gaps) from 1820 to 1860. The prices are three–year averages, and the total number of actual observations are in parentheses. Unfortunately the observations are not confined to male slaves. The averages of appraisal prices do exclude any slaves who were under 10, over 55, sick, or skilled, while the averages of sale prices include all slaves. Any of Table 6.4's observed price disparities, therefore, may result merely from differences in such demographic characteristics as age, sex, and skills. Nonetheless, in each decade, prices are always lowest in Maryland, and generally higher in both North

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[61]For instance, Evans, "The Economics of American Negro Slavery"; Friedman and Galantine, "Regional Markets for Slaves and the Interregional Slave Trade"; and Yang and Freidman, "Some Economic Aspects of the Southern Interregional Migration, 1850–1860" all classify their regions in this fashion.

and South Carolina than in Virginia. Perhaps most stunning is the persistent 20 to 30 percent gulf between Maryland prices and those of neighboring Virginia.

Similar series for New Orleans and for rural Georgia and Louisiana are available. But until some researcher reports slave prices for St. Louis, or for rural areas in Missouri and Kentucky, we cannot determine definitely if a north–south gap was present in the western slave states. A contemporary estimate of slave prices by Ezra C. Seaman suggests that the western differential was in fact comparable. For 1850, Seaman valued the average slave in Delaware, Maryland and the District of Columbia at $300, in Virginia, Kentucky, and Missouri at $310, in North Carolina and Tennessee at $330, in South Carolina and Arkansas at $350, and in Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas at $400.[62] The absence of some such disparity along the north–south axis in the west is assuredly unlikely.

In sum, most available information indicates that slave prices fell as one approached the border with the free states. Of course, factors other than the risk of a bondsman running away could have caused north–south price differences. The Lower South grew most of the country's cotton, and the Upper South grew very little. Yet this would hardly explain the chasm separating slave prices in Virginia and Maryland. Some southern states at various times, including Virginia, imposed legal restrictions on the interstate slave trade, which if binding might have affected prices. But Tadman finds that such restrictions were easily ignored or

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[62]Ezra C. Seaman, *Essays on the Progress of Nations, in Civilization, Productive Industry, Wealth and Population* . . . (New York: Charles Scribner, 1852), p. 619.

evaded.[63] The annual hire rates for slaves (the variable T in equation 2.2) might offer one way of isolating these and other influences, since hire rates would at most reflect a small risk of running away during the year in question. But then we must become even more concerned whether the skill, age, and gender mix among the groups being compared is the same. The slave rental for females, for instance, was often half that for males.

Goldin's hire rates for rural slaves, in Table 6.4, do not give us any information on South Carolina. Accounting for the huge disparity between the hire rates of Maryland and Virginia, far greater than the corresponding price disparity, is very difficult without recourse to some major incommensurability in the samples, unless the proximity of Baltimore and Washington, with their large free black populations, significantly affected temporary absences and labor discipline generally in Maryland. On the other hand, we find no correlation in the differences between hire rates and prices for Virginia and North Carolina, suggesting that risk was the primary variable accounting for those price differences.[64] The Department of Agriculture in 1867 reported what are perhaps a more reliable set of slave rentals, because they are confined to agricultural slaves

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[63]Tadman, *Speculators and Slaves*, pp. 14–5, 83–93. On the other hand, Freehling, *The Road to Disunion*, v. 1, pp. 464–73, finds extensive political opposition to Kentucky's ban of 1833, which barred importation of slaves except by emigrants for their own use. This suggests the law did have some effect that would have been reflected in prices.

[64]Gerald Gunderson also reported hire rates for male slaves on a state–by–state basis in "Southern Ante–bellum Income Reconsidered," *Explorations in Economic History*, 10 (Winter 1973), 156. Although he claimed these estimates came from Evans, "The Economics of American Negro Slavery," Evans did not break down his observations by states. What Gunderson actually did was use Evans as a guideline for working backwards from Phillips's data on slave prices to slave rentals. He therefore found rental differences that coincided with price differences, but only because he was assuming what should be tested.

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and distinguish between those who were male, female, and children under fourteen of either sex. (See Table 6.5) According to this study, the hire rate for males in 1860 was $105 in Virginia, $110 in North Carolina, and $103 in South Carolina. When compared with the hire rates of slave states further west, such as $124 in Georgia and $171 in Louisiana, this near uniformity generates a strong supposition that the fugitive slave problem indeed caused the north–south gradient in slave prices.[65]

A rough calculation based on equation 6.1 can easily confirm whether the runaway rates in Table 6.2 could actually be responsible for the price differentials observed in Table 6.3. Assume that Phillips's Charleston price of $1,225 for 1860 reflected the 0.03 percent risk that South Carolina prime–age male slaves would abscond permanently in that year. Then raising the risk to the 0.12 percent prevailing in Virginia would reduce the price to about $1,213, and raising the risk to the 0.66 percent prevailing in Maryland reduces the price further to about $1,145. Notice how the two lower prices nicely bracket Phillips's Richmond price of $1,200 for 1860.

We can also estimate the annual losses to slaveholders overall. Simply multiply the total number of reported successful escapes in either 1850 or 1860 times the average price of prime hands. Although not all fugitives were prime

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[65]U.S. Department of Agriculture, *Report of the Commissioner of Agriculture, for the Year 1867* (Washington: Government Printing Office, 1868), p 416. Previous researchers who have used these estimates are M[atthew]. B[rown]. Hammond, *The Cotton Industry: An Essay in American Economic History*, v. 1, *The Cotton Culture and the Cotton Trade* (New York: American Economic Association, 1897), pp. 89–90; and Conrad and Meyer, *The Economics of Slavery and Other Studies in Econometric History*, p. 72–3, although in both cases, they incorrectly cited the Agriculture Commissioner's report for the prior year, 1866.

hands, many were skilled slaves whose value was much higher. The Charleston prices—$1225 in 1860 and $800 for 1850—probably will yield the most reasonable, conservative results, because they are not already adjusted downward for the entire loss of running away, yet they exclude the high annual earnings of the Southwest. The loss for 1860 was thus $984,000 and for 1850 is $809,000. These amounts translate into nearly $20 million per year in today's prices[66] and actually exceed many of contemporary estimates of Southerners themselves. Andrew Pickens Butler, Senator from South Carolina, for instance, put the yearly loss at a mere $200,000 in the late 1840s.[67] Bear in mind, moreover, that only absolute minimum estimates can be derived from the census. The annual number of successful escapes may have been twice as high. With an interest rate of 10 percent, the reduction in the total value of slave assets must have approached at least $10 million (1860 prices).

IV

Enforcement costs also affected slavery in the South's cities and towns. More than one–third (35.2 percent) of southern free blacks were residing in those locations in 1860, a proportion much higher than for either whites (14.8 percent) or slaves (5.0 percent).[68] This concentration of free blacks is just one of several

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[66]My procedure for converting to today's (2000) prices is explained above in Chapter 2, n. 13.

[67]Alan Nevins, *Ordeal of the Union* (New York: Charles Scribner's Sons, 1947), v. 1, p. 243. Nevins, unfortunately, does not provide his source. For other southern estimates, see Stanley W. Campbell, *The Slave Catchers: Enforcement of the Fugitive Slave Law, 1850–1869* (Chapel Hill: University of North Carolina Press, 1970), p. 6.

[68]Ira Berlin, *Slaves Without Masters: The Free Negro in the Antebellum South* (New York: Random House, 1974), pp. 55, 176.

reasons why cities and towns gave urban slaves greater opportunities for escape and simultaneously attracted fugitives from the countryside. Court records in New Orleans list no fewer than 913 arrests for running away during fifteen months in 1858 and 1859.[69] That exceeds the 1860 Census figure for total annual runaways from the entire South. Urban areas consequently required a more highly developed public system of slave control. This usually included a special Negro or Mayor's Court; a municipal corrections facility providing, among other services, slave whipping at a master's behest for a fee; and a professional night watch or city guard, establishing one of the earliest precedents for modern police forces. "Such an extensive system was obviously expensive," writes Richard C. Wade. In the case of Charleston, for instance, "police costs generally constituted the largest single item in the town's budget."[70]

Wade was one of the first scholars to focus on urban slavery in the antebellum South. His 1964 monograph, *Slavery in the Cities*, found that "slavery was disintegrating in Southern cities." In 1820 blacks held in bondage constituted nearly one quarter of the population in ten of the South's largest cities: Baltimore, Charleston, Louisville, Mobile, New Orleans, Norfolk, Richmond, St. Louis, Savannah, and Washington. In 1860 the relative number enslaved in those locations had fallen to 8 percent, and "[i]n the border cities the institution had nearly disappeared altogether." The proportion of slaves among Baltimore's inhabitants fell from 7 percent in 1820 to 1 percent in 1860; among St. Louis's

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[69]Richard C. Wade, *Slavery in the Cities: The South 1820–1860* (London: Oxford University Press, 1964), p. 219.

[70]*Ibid.*, p. 100.

from 18 percent to 1 percent over the same period. Charleston slaves had outnumbered free whites and blacks in the earlier year but were only one–third of the city's residents on the eve of the Civil War. During the decade of the 1850s, the retreat overall was especially precipitous. "Everywhere proportionately, and in many places absolutely, the number of town slaves declined."[71]

Wade attributed this disintegration to the greater difficulty of enforcing the peculiar institution in the South's urban areas. Claudia Goldin, a Fogel student, has challenged Wade's explanation.[72] Plugging both her own and the Fogel–Engerman price and hire data into regression equations, she determined that the urban demand for slaves was in fact rising over the antebellum years. Rural demand, however, was also rising. Since the two combined went up more rapidly than the supply of slaves, prices were driven up. Cotton plantations could afford these higher prices, whereas towns and cities shifted to free labor. "The greater ability of urban labor demanders to substitute free for slave workers appears to explain many of the apparent anomalies in the data," concludes Goldin.[73] In other words, enforcement costs were not pushing slaves out of the

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[71]*Ibid.*, pp. 3, 243. Wade compiled from the U.S. censuses the absolute population breakdown for these ten cities; see his appendix, pp. 325–30. I calculated percentages using his numbers. Claudia D. Goldin also presents the raw numbers and the corresponding decennial rates of change in *Urban Slavery in the American South, 1820–1860*, pp. 52–3.

[72]Claudia Dale Goldin, "A Model to Explain the Relative Decline of Urban Slavery: Empirical Results," in Stanley L. Engerman and Eugene D. Genovese, eds., *Race and Slavery in the Western Hemisphere*; Goldin, *Urban Slavery in the American South, 1820–1860*; Goldin, "Urbanization and Slavery: The Issue of Compatibility," in Leo F. Schnore, ed., *The New Urban History: Quantitative Explorations by American Historians* (Princeton, NJ: Princeton University Press, 1975); and Goldin, "An Explanation for the Relative Decline of Urban Slavery: 1820–1860," in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1.

[73]Goldin, *Urban Slavery in the American South, 1820–1860*, p. 86.

cities. Rather, a more inelastic plantation demand was pulling slaves into the countryside.

Scholars have given insufficient attention to the assumptions udergirding Goldin's analysis. Some are unobjectionable and realistic, such as the suppositions that the short–run supply of slaves in the South overall was totally inelastic, whereas urban areas, holding 5 percent or less of the region's slave population, faced an infinitely elastic supply at the given market price. But one of the least compelling of Goldin's assumptions—one that is unfortunately unavoidable—is that demand elasticities remained constant for each city and for the rural South. It is well known among economists that "elasticity can change . . . as one moves along the demand schedule" and often does.[74] Consumer demand for water when it is extremely scarce and high priced, as an example, would probably be quite inelastic; that is, the quantity demanded would be very insensitive to changes in price. When water is so abundant that consumers can use it for more than quenching their thirst, the demand undoubtedly becomes more elastic. Nevertheless, Goldin not only holds all demand elasticities constant at any given time (including price elasticity, income elasticity, and cross elasticities) but does so over forty–year intervals.

Not that it matters much; Goldin's and Wade's explanations are not really all that incompatible. In light of the South's ongoing population growth, we would expect both urban and rural demand for slaves to be rising. In fact, between 1820 and 1860 the South's ten major cities expanded at nearly twice the rate as

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[74]*Ibid.*, pp. 77–8 (footnote).

the South altogether,[75] and therefore Goldin found that "the rate of demand for urban slaves . . . surpass[ed] that for the rural region." Where enforcement costs would have shown up was not in these demand *shifts* but in Goldin's demand *elasticities*. She credits the inelastic agricultural demand to the "efficiency" of cotton plantations, as alleged by Fogel and Engerman. "What made slaves so irreplaceable in the rural sector?" she asks. "The use of slaves in Southern agriculture appears to have enabled scale economies which would not have been achieved with free labor."[76] But as our previous chapter demonstrated, this much–touted productivity resulted entirely from making slaves work harder than free laborers. And the reason plantations could do that is because they found coercion cheaper at the margin than wages. In other words, slavery's enforcement costs were lower either because of the physical nature of field work, the rural isolation of the location, or some combination of those and other possible features.

In Chapter 3 we observed that the trade–off between punishments and rewards divided the South's labor market into three sectors. Slave labor dominated where punishments tended to be the least costly incentive at the margin, as on the plantation. Free labor dominated were rewards were the least costly incentive, such as in highly paid professions. Slave labor and free labor competed in towns and cities, where the comparative marginal costs were fairly

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[75]The combined population of Baltimore, Charleston, Louisville, Mobile, New Orleans, Norfolk, Richmond, St. Louis, Savannah, and Washington was 172,711 in 1820 and 815,523 in 1860. Over the same interval, the population of the slave states (including Washington, DC) rose from 4.486 million to 12.315 million.

[76]Goldin, *Urban Slavery in the American South, 1820–1860*, pp. 106, 105.

close. In short, Wade was basically right. Relative enforcement costs accounted for why and when free and slave labor become close substitutes. These costs were the variable that made the rural demand for slaves much more inelastic than was the urban demand. Examination of Goldin's elasticity estimates among southern towns and cities (Table 6.6) provides further substantiation. "The border state cities had the greatest elasticities of demand," she observes, reflecting partly the additional cost of being close to the North.[77]

Admittedly, some dynamic factor is also necessary to explain the receding of urban slavery over time, and this is where Goldin's demand–supply framework meshes comfortably with Wade's analysis. Goldin looked closely at the license fees, hiring badges, slave taxes, mandated employment discrimination, and other assorted burdens that cities and towns imposed on slavery, and she found little alteration during the antebellum era in either levels or proportion borne by nonslaveholders.[78] With enforcement costs fairly constant, climbing slave prices—as supply failed to keep pace with demand—did indeed play a crucial role in drawing slaves out of the South's urban areas. Yet there was one respect in which legal impositions became unambiguously more severe prior to the Civil War. As discussed in Chapter 3, nearly all the slave states tightened restrictions on manumission. Such restrictions, while closing off a potential source of the

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[77]*Ibid.*, p. 113. The exception is Louisville, Kentucky, whose price elasticity (0.46) is strangely low for border cities, although not for southern cities in general. This may have something to do with the price data Goldin employed in her regressions. Having no information for Louisville, she used prices from the Virginia cities of Fredericksburg, Lynchberg, and Richmond. Facing a similar problem with respect to St. Louis, Goldin relied on rural Louisiana prices, a more defensible expedient.

[78]*Ibid.*, pp. 38–42, 47–9, 133–8.

peculiar institution's dissolution, ironically contributed to making urban slavery less viable.

Manumission, particularly through self–purchase, was concentrated in cities and towns.[79] It was among the positive incentives upon which slaveholders relied for motivating their chattels to perform the skilled and lucrative tasks that predominated in urban areas and that were nearly unsusceptible to negative incentives. A South Carolina act of 1820 that limited the freeing of slaves to legislative prerogative is believed to have been one provocation for Denmark Vesey's conspiracy among Charleston's slaves.[80] That abortive revolt indicates the significance that bondsmen themselves attached to this incentive. Even as Civil War loomed on the horizon, the census found that masters freed their slaves at three times the reported rate of runaways.[81] "*All* urban slave systems, both ancient and modern, exhibit high rates of manumission [emphasis original]," insists Patterson:

> There is no known exception to this sociological law of slavery; it holds
> even for the one case of large–scale urban slavery in the non–Hispanic
> Caribbean, early–nineteenth century Curaçao, situated in a sea of brutal
> plantation slave systems with extremely low rates of manumission. . . . It

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[79]A brief survey of manumissions in New Orleans is Laurence J. Kotlikoff and Anton J. Rupert, "The Manumission of Slaves in New Orleans, 1827–1846," *Southern Studies*, 19 (1980), 172–81, reprinted in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent Or Contract: The Rise and Fall of American Slavery—Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2 (New York: W. W. Norton, 1992).

[80]Wade, *Slavery in the Cities*, p. 239; John Lofton, *Denmark Vesey's Revolt*, p. 81.

[81]According to the [U.S. Census Office, 1860 Census], *Statistics of the United States (Including Mortality, Property, etc.) in 1860*, p. 337, 3,018 slaves were manumitted during the 1859 census year.

is the one generalization in comparative historical sociology I am prepared to declare, unequivocally, a social law.[82]

By 1860 only the border states of Delaware and Missouri had refrained from hindering a master's right to free his slaves. At the same time, the legal disabilities faced by free blacks were becoming more onerous, making manumission relatively less attractive—even when legal. To be sure, the barriers to manumission were evaded by slaveowners and slaves alike, as a quasi–free caste of blacks emerged in the South's commercial centers. Ira Berlin notes that court reporters in Mobile, Alabama, "regularly distinguished between bona fide free people of color and 'quasi–f.p.c.'s'" during the 1850s.[83] But this development hardly offset the general decline of manumission throughout the South, which thus went hand-and-hand with the decline of urban slavery.

To the extent that the decrease in city slaves helped slow the growth of the South's towns and cities generally, it also contributed marginally to a relative lack of urbanization. The region's agrarian predominance cannot then be brushed aside as due *entirely* to a comparative advantage in agriculture. It becomes one small manifestation of classical inefficiency, in which the peculiar institution stifled the creation of human capital among blacks, limited the extent of urban–based markets, and made the southern economy poorer than otherwise—just as traditional historians have always suspected.[84]

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[82]Orlando Patterson, *Freedom*, v. 1, *Freedom in the Making of Western Culture* (New York: Basic Books, 1991), pp. 235, 442 (n. 26). See also his *Slavery and Social Death*, pp. 262–96.

[83]Berlin, *Slaves Without Masters*, p. 148.

[84]Closely related arguments about southern urbanization are in Ralph V. Anderson and Robert E. Gallman, "Slaves as Fixed Capital: Slave Labor and Southern Economic Development," *American*

V

Border South representatives had attempted to strengthen the first fugitive

slave law almost from the moment of its passage. Senator William Vans Murray

of Maryland introduced an amendment in 1793 that would have fined employers

who hired fugitives a sum $500, payable to the slave's owners. The Senate tabled

his motion, but in 1801 Congressman Joseph Nicholson, also of Maryland,

proposed a $500 fine on anyone "harboring, concealing or employing" a runaway,

defined as any black person failing to show an official certificate of freedom.

Nicholson's bill nearly passed the House. Again in 1817, James Pindall,

Congressman from Virginia, wanted to transfer the legal onus for returning

runaway slaves to the governors of the free states, just as in the case of fugitive

criminals. Separate versions of his bill made it through both the House and

Senate, but the two houses could not reconcile their differences.[85] Although other

measures were reported the next year and three years after that, both in response

to Maryland resolutions complaining about the assistance that escaped slaves

received in Pennsylvania, neither made much headway.[86]

Historical Review, 64 (Jun 1977), 24–46; Viken Tchakerian, "Productivity, Extent of Markets, and Manufacturing in the Late Antebellum South and Midwest," *Journal of Economic History*, 54 (Sep 1994), 497–525, and John Majewski, *House Dividing: Economic Development in Pennsylvania and Virginia Before the Civil War* (Cambridge, UK: Cambridge University Press, 2000).

[85]*Annals of Congress*, 4th Cong., 2nd sess. (29 Dec 1796), 1740–1; 7th Cong., 1st sess. (18 Dec 1801), 336, (15–18 Jan 1802) 423–5; 15th Cong., 1st sess. (27–31 Jan 1818) 819, 825–31, 837–40 (12–13 Mar 1818), 262, 1339 (10 Apr 1818), 1716. The fullest secondary discussion of these legislative initiative is in Robinson, *Slavery and the Structure of American Politics, 1765–1820*, pp. 285–93. Also consult Campbell, *The Slave Catchers*, pp. 8–10, and Morris, *Free Men All*, pp. 29–41.

[86]*Annals of Congress*, 15th Cong., 2nd sess (15–16 Jan 1819), 546, 551; 17th Cong., 1st sess (17 Dec 1821), 552–7; (11 Jan 1822), 710 (27 Mar–1 Apr 1822), 1379, 1415, 1444; McDougall, *Fugitive Slaves (1619–1865)*, pp. 23–4; Morris, *Free Men All*, p. 41.

Southerners finally got a new fugitive slave law as a result of the Compromise of 1850.[87] A petition from the Kentucky legislature had impelled Senator Butler of South Carolina to submit such a bill in 1848. But not until the territorial crisis over California's admission as a free state, two years later, was Congress ready to act. At the beginning of January Senator James M. Mason of Virginia reintroduced Senator Butler's bill, which then went through a grueling spring and summer of round after round of debates and amendments. When the seventy-three-year-old Henry Clay pleaded before the Senate for a comprehensive settlement of all outstanding controversies, the new fugitive slave bill was the only unequivocally proslavery provision of the Kentucky slaveholder's entire package. "I will go with the furthest Senator from the South," Clay promised, "to impose the heaviest sanctions upon the recovery of fugitive slaves, and the restoration of them to their owners."[88]

To soothe northern sensibilities, Clay was willing to provide the alleged fugitive with a jury trial, not in the free state where captured but in the slave state from which he had fled. Proslavery stalwarts would have none of it. More hotly contested among Southerners was a proposed amendment from Senator Thomas George Pratt of Maryland. It would have required the U.S. Treasury to reimburse

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[87]The congressional deliberations that produced the Compromise of 1850 are covered in Holman Hamilton, *Prologue to Conflict: The Crisis and Compromise of 1850* (Lexington: University of Kentucky Press, 1964), whereas the work that best puts the compromise within a wider context remains David M. Potter's widely acclaimed *The Impending Crisis, 1848–1861* (New York: Harper & Row, 1976). Freehling, *The Road to Disunion*, v. 1, pp. 487–510, has heavily influenced my understanding of the fugitive slave issue's importance within the compromise. On that act specifically and its legislative evolution, see Campbell, *The Slave Catchers*, pp. 15–25, and Morris, *Free Men All*, pp. 130–47.

[88]*Congressional Globe*, 31st Cong., 1st sess. (5 Feb 1850), appendix, p. 123.

any slaveowner for the value of the escaped slave plus all legal expenses whenever northern hostility blocked return. Border South representatives tended to support this indemnity. Senator Jefferson Davis of Mississippi, and others from the deep and mid South, couched their adamant objections in states' rights terms. But Lacy Turner Hopkins, Senator from Tennessee, revealed their paramount concern. By weakening the incentives to prevent flight and to recover fleeing bondsmen, the proposal's effect "will be to emancipate the slaves of the border States and to have them paid for out of the Treasury of the United States."[89] Approaching outright compensated emancipation, Pratt's amendment would have hastened the very erosion of the peculiar institution that the fugitive slave bill was intended to forestall. A final version of the bill, without either jury trial or indemnity, passed both houses in September of 1850 and was signed by President Millard Fillmore, a New Yorker. In essence, "southern congressmen surrendered California to the North in exchange for a new Fugitive Slave Law," to quote historian William W. Freehling.[90]

One of the harshest congressional measures ever, the new act created a special category of federal court officials, called commissioners, to help slaveholders seize fugitives. All the slaveholder had to do was present an affidavit. The alleged runaway not only had no right to a jury trial but could not even testify. Furthermore, commissioners had a small financial incentive to rule against the fugitive. They received a $10 fee from the claimant for deciding that a

[89]*Ibid*. (22 Aug 1850), appendix, p. 1616.

[90]William W. Freehling, "The Complex Career of Slaveholder Expansionism," in Freehling, *The Reintegration of American History*, p. 170.

black was an escaped slave, but only $5 for not. To enhance enforcement, Congress empowered commissioners to conscript the physical aid of any private citizen, thereby extending the principle behind compulsory slave patrols into the North. Obstructing the law was subject to a $1000 fine, six months in prison, and $1000 civil damages for each escaped slave.[91]

With this law, Southerners put the North on notice that nothing—not due legal process, not civil liberties, not even the cherished principle of state sovereignty—could stand in the way of masters recovering their human chattel. Free blacks were the northern group in greatest jeopardy. They had no legal recourse if a Southerner claimed they were escaped slaves. The law thereby fostered an unsavory class of professional slave catchers, who could make huge profits by legally kidnapping free blacks in the North and selling them into slavery in the South. Panic reigned in the northern black communities, as many fled to Canada.[92]

The pitiful spectacle of helpless blacks being seized in the streets and dragged off to slavery could unsettle the most prejudiced northern white. Northern mobs, which once had directed their fury at abolitionists, now attacked slave catchers, broke into jails, and rescued fugitive slaves. The black abolitionist Frederick Douglass urged that "the only way to make the Fugitive Slave Law a

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[91]The text of the law is (18 Sep 1850) 9 *Statutes* 462–5.

[92]The very real threat to northern free blacks under this new enactment, as well as under the previous fugitive slave law, is revealed in Carol Wilson, *Freedom at Risk: The Kidnapping of Free Blacks in America, 1780–1865* (Lexington: University Press of Kentucky, 1994). See also James Oliver Horton and Lois E. Horton, "A Federal Assault: African Americans and the Impact of the Fugitive Slave Law of 1850," in Paul Finkelman, ed., *Slavery & the Law* (Madison, WI: Madison House, 1997).

dead letter is to make half a dozen or more dead kidnappers," and an 1851 gun

battle in Christiana, Pennsylvania, left at least one dead "kidnapper."[93] The

national government tried vigorously to prosecute these law breakers, but

northern juries refused to convict. In some cases, the authorities had to rely upon

military force. The seizure in May 1854 of Anthony Burns, an escaped Virginia

slave, brought protesters into Boston from the surrounding countryside. Their

unsuccessful assault upon the court house where Burns was being held resulted in

the killing of one guard. Soon the government had called out two companies of

artillery and one thousand police, militia, and marines to march Burns to the

harbor, while a menacing crowd of twenty thousand Yankees looked on.

Southerners never successfully recovered a runaway slave from Boston again.[94]

The Fugitive Slave Law of 1850 also eventually sparked stronger personal

liberty laws. Beginning with Vermont, nine free states either provided for the

legal defense of alleged runaways or openly defied the national government by

requiring jury trial, *habeas corpus*, and other procedural safeguards. Not until

1859 did the Supreme Court strike down these state laws, at a time when

intensifying sectional strife was eclipsing all the legal niceties.[95]

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[93]Speech at Pittsburgh, PA, 11 Aug 1852, John W. Blassingame, ed., *The Frederick Douglass Papers; Series One: Speeches, Debates and Interviews* (New Haven: Yale University Press, 1979–92), v. 2, p. 390; Thomas P. Slaughter, *Bloody Dawn: The Christiana Riot and Racial Violence in the Antebellum North* (New York: Oxford University Press, 1991).

[94]Jane H. and William H. Pease, *The Fugitive Slave Law and Anthony Burns: A Problem in Law Enforcement* (Philadelphia: J. B. Lippincott, 1975). The role of U.S. marshals in fugitive slave enforcement can be found in Frederick S. Calhoun, *The Lawmen: United States Marshals and Their Deputies, 1789–1989*, rev. edn. (New York: Penguin Books, 1991), pp. 82–93.

[95]Morris, *Free Men All*, pp. 148–218.

Yet the Fugitive Slave Law was far from a dead letter. The illegal rescues and legal obstructions received all the publicity but the successful apprehensions and ultimate returns were more numerous. Stanley W. Campbell has tracked down details of 332 fugitive slave cases in the ten years after passage of the law. Over half, 191, went before a federal tribunal, while the other 141 involved slaveowners or their agents seizing runaways without recourse to judicial process. In only 22 cases were blacks rescued from custody, only 1 escaped on his own, and another 11 were released. Thus, in almost 90 percent of the total cases, or 80 percent of the federal cases, the fugitive was hauled back South. Moreover, many private seizures were almost certainly unrecorded.[96] Of course, that is also true of many permanent slave escapes, as we have already seen. But insofar as the census figures on runaways in Table 6.2 give us reliable information about trends between 1850 and 1860, we can agree with *National Anti–Slavery Standard*, which commented in 1862: "The falling off in the last decade *may* be owing to the imperfection of the returns; but if not, it is doubtless to be ascribed in part to the operation of the Fugitive Slave Law [emphasis original]. . . ."[97]

VI

Despite the effectiveness of the new Fugitive Slave Law, many Southerners came to believe that Yankee defiance had nullified it. Nor was the statute stringent enough to arrest the peculiar institution's retreat from the South's borders, which continued apace during the 1850s. References by Southerners to

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[96]Campbell, *The Slave Catchers*, pp. 110–47, 199–207.

[97]*National Anti–Slavery Standard*, 22 (25 May 1861), [3].

slaves escaping and Northerners giving aid are so frequent that no historian can ignore them. But because of the supposedly small number of actual runaways, scholars have tended to dismiss these complaints as merely symbolic. Stanley Campbell concludes his otherwise fine study with the observation that "the institution of slavery was not endangered by the fugitive slave problem" because of ". . . the small number of slaves that escaped each year as compared with the over–all slave population. . . . [T]he assertion that the failure to recover a few hundred fugitive slaves was grounds for severing the Union rings hollow upon closer examination."[98]

The "symbolic" interpretation can reach the extremes of Bertram Wyatt-Brown, who does not address the fugitive slave issue directly but implies that secession itself resulted in large part from the wounds to southern pride inflicted by the harsh rhetoric of abolitionists, Republicans, and other Northerners.[99] I do not doubt that Southerners indeed had an exaggerated sense of honor. But the economic link between the runaway and slavery's enforcement costs makes the issue much more than just symbolic.

Why were Southerners in the mid–1850s so intent upon making Kansas a slave state, when all sides recognized that most of state would prove unsuitable for plantation agriculture? Standard accounts present half the story when they point out that Kansas offered two more proslavery Senators and some proslavery

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[98]Campbell, *The Slave Catchers*, p. 196.

[99]Bertram Wyatt–Brown, "Honor and Secession," in Brown, *Yankee Saints and Southern Sinners* (Baton Rouge: Louisiana State University Press, 1985). This general theme is skillfully expounded in Brown, *Southern Honor: Ethics and Behavior in the Old South* (New York: Oxford University Press, 1982).

Congressmen.[100] But if that is *all* that concerned slaveholders, they would have been better advised to support imperialistic expansion into the Caribbean, which could have ultimately gained them many more Senators and Congressmen. At the very moment that President Franklin Pierce, a southern sympathizer from New Hampshire, was ramming the Kansas–Nebraska Act through Congress, his administration was also looking acquisitively at Cuba. With vast sugar plantations, worked by almost half a million black slaves, "the Pearl of the Antilles" as a new state could have added thirteen to fifteen slaveholding representatives in Congress.[101] But the seizure of Cuba faltered, in large part, as Freehling points out, because "southern congressman fought harder for the Kansas–Nebraska Act than for Cuba."[102]

Senator David Rice Atchison of Missouri, who was one of those trying so hard to bring slavery to Kansas, revealed the other half of the story. "The State of Missouri is now bounded on two sides by free States; organize this Territory as free territory, then we are bounded on three sides by free States or Territories." Even with very few slaves, so long as Kansas had a rigid slave code, it would not attract runaways. Unless Missouri's vulnerable borders were protected, the

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[100]Works focusing on the Kansas controversy include James C. Malin, *The Nebraska Question, 1852–1854* (Lawrence: University of Kansas, 1953); James A. Rawley, *Race and Politics: 'Bleeding Kansas' and the Coming of the Civil War* (Philadelphia: J. B. Lippincott, 1969); and Gerald W. Wolff, *The Kansas–Nebraska Bill: Party, Section, and the Coming of the Civil War* (New York: Revisionist Press, 1977).

[101]Robert E. May, *The Southern Dream of a Caribbean Empire, 1854–1861* (Baton Rouge: Louisiana State University Press, 1973), and Basil Rauch, *American Interest in Cuba, 1848–1855* (New York: Columbia University Press, 1948).

[102]Freehling, "The Complex Career of Slaveholder Expansionism," p. 170. See also Freehling, *The Road to Disunion*, v. 1, pp. 536–65.

peculiar institution would be compromised within the state. "We are playing for a mightly [*sic*] stake," Atchison wrote to a fellow southern Senator. "If we win we carry slavery to the Pacific Ocean[;] if we fail we lose Missouri Arkansas and Texas and all the territories, the game must be played boldly."[103]

The *St. Louis Republican* echoed Atchison's concern. "If Nebraska be made a free territory, then will Missouri be surrounded on three sides by free territory, where there will always be men and means to assist in the escape of our slaves." As a consequence, "this species of property would become insecure . . . in Missouri." Ultimately "six millions of property will be rendered valueless by this single act of legislation." Indeed, "the Free–Soilers and Abolitionists look to this result, and calculate upon the facilities which will be offered by incorporation of this Territory with a provision against slavery, as a means of abolishing slavery in Missouri."[104]

Southerners eventually lost Kansas, and their effort to impose slavery there only fostered the anti–slavery Republican Party. Upon the election of this new party's candidate, Abraham Lincoln, to the presidency in 1860, seven southern states did exactly what radical abolitionists had been advocating all along and seceded from the Union. Yet the first to leave, South Carolina, did not give Lincoln's election the greatest play in its Declaration of Causes. Instead the

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[103]*Missouri Republican* (31 Aug 1853), as quoted by William E. Parrish, *David Rice Atchison of Missouri, Border Politician* (Columbia: University of Missouri Press, 1961), p. 128; Atchison to Robert M. T. Hunter, 4 [Apr] 1855, Charles Henry Ambler, ed., *Correspondence of Robert M. T. Hunter, 1826–1876* (Washington: American Historical Association, 1918), p. 161.

[104]As quoted in Alan Nevins, *Ordeal of the Union*, v. 2, p. 92. On the vulnerability of slavery in Missouri, see Anthony Harrison Trexler, *Slavery in Missouri, 1804–1865* (Baltimore: Johns Hopkins Press, 1914), p. 185.

document's foremost grievance was northern evasion of the Constitution's fugitive slave clause.[105] In part, this was a rhetorical ploy that allowed South Carolinians to blame Northerners for first breaching the Constitutional contract. But it also reflected a realistic fear that would come up again as other southern states considered disunion. Leonard S. Hall, a delegate from the northwestern part of Virginia, declared at his state's secession convention that "we have few slaves—we cannot keep them—the emissaries of the underground railroad are always on the alert, and the terminus of that road is at our very door."[106]

Secession was a risky gamble. By leaving the Union, Southerners were abandoning the Constitution's protections for slavery and possibly unleashing the very plague of runaways they feared. But with Republicans in control of the national government, many southern whites felt they had nothing to lose. Their peculiar institution was certainly doomed otherwise. Slaveholders could better depend upon an independent central authority to provide those protections and police the new borders. As one Georgian explained in a letter to his Senator, Alexander H. Stephens, independence would permit Southerners to erect "an impassable wall between the North & the South so that negroes could not pass over to the North or an abolitionist come to the South to annoy us any more."[107]

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[105]"Declaration of Causes Which Induced the Secession of South Carolina," 24 Dec 1860, reprinted in Frank Moore, ed., *Rebellion Record: A Diary of American Events* (New York: G. P. Putnam and D. Van Nostrand, 1861–71), v. 1, documents, p. 4.

[106]As quoted in William W. Freehling, "The Editorial Revolution, Virginia, and the Coming of the Civil War," in Freehling, *The Reintegration of American History*, p. 8.

[107]As quoted in William Barney, *The Road to Secession: A New Perspective on the Old South* (New York: Praeger, 1972), p. 200.

But other Southerners disagreed, including Stephens himself. Although he would become the Confederacy's Vice President, he opposed his state's secession, judging "slavery more secure in the Union than out of it."[108] Lincoln himself warned in his first inaugural that "[w]e can not . . . build an impassable wall between" the sections. The runaway problem would actually "be worse . . . *after* the separation of the sections than before . . . [F]ugitive slaves, now only partially surrendered, would not be surrendered at all . . . [emphasis original]"[109] As Lincoln took the oath of office, the Union still contained eight slave states, more than had left. Only in South Carolina did secession pass with an overwhelming majority. Not until Lincoln's call for troops on April 15, 1861, making explicit his intention to hold the Union together with force, did Virginia, North Carolina, Tennessee, and Arkansas join the Confederacy, while the four border states officially never did.[110]

The individual runaway, in the final analysis, helped both to provoke secession and to ensure that secession was unable to shield slavery in the end. For it was the fugitive slave who ultimately brought down the peculiar institution. Lincoln's Emancipation Proclamation technically freed no blacks. As a war

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[108]Stephens to J. Henly Smith, 10 Jul 1860, Ulrich Bonnell Phillips, ed., *The Correspondence of Robert Toombs, Alexander H. Stephens, and Howell Cobb* (Washington: American Historical Association, 1913), p. 487.

[109]James D. Richardson, ed., *A Compilation of the Messages and Papers of the Presidents* (Washington: Bureau of National Literature, 1922), v. 7, p. 3211.

[110]Ralph A. Wooster, *The Secession Conventions of the South* (Princeton, NJ: Princeton University Press, 1962); Steven A. Channing, *Crisis of Fear: Secession in South Carolina* (New York: W. W. Norton, 1970); and Daniel W. Crofts, *Reluctant Confederates: Upper South Unionists in the Secession Crisis* (Chapel Hill: University of North Carolina Press, 1989).

measure, the proclamation applied only to the areas still in rebellion. It did not emancipate any of the slaves in the border states. Nor did it emancipate any slaves in those sections of the Confederacy that Union armies had already reconquered, including all of Tennessee and large portions of Virginia and Louisiana. The only slaves covered were the ones beyond the reach of Union authority.[111] This anomaly brought a cynical retort from Secretary of State William H. Seward. "We show our sympathy with slavery," he stated the day after the proclamation was issued, "by emancipating slaves where we cannot reach them, and holding them in bondage where we can set them free."[112]

Southern slavery was in serious trouble all the same. Some Union commanders had scrupulously respected southern "property" and returned fugitive slaves, while federal marshals continued to seize runaways throughout the North. But even before the Emancipation Proclamation, other commanders had refused to return slaves who fled to Federal lines, defining them as "contraband of war." Although Congress still balked at repealing of the Fugitive Slave Act, the Radical Republicans pushed through in March 1862 an alteration in the articles of war that forbade all army and navy personnel from enforcing the act.[113] Most significantly, the Republican majority passed two confiscation acts

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[111]The development of the Union's policies toward slaves is a vast subject thoroughly treated by many works in far greater detail than is necessary here. One standard account is John Hope Franklin, *The Emancipation Proclamation* (Garden City, NY: Doubleday, 1963).

[112]Donn Piatt, *Memories of the Men Who Saved the Union* (New York: Belford, Clarke, 1887), p. 150.

[113](13 Mar 1862), 12 *Statutes* 354.

directed at persons supporting the rebellion. All their property was forfeited and their slaves freed.[114]

The confiscation acts were clumsy in practice, requiring the operation of federal courts. But masters still felt compelled to move their slaves away from approaching Federal troops. Not only did this disrupt agricultural routines, but the new locations often did not offer the slaveholder comparable profits. They hired out increasing numbers of their bondsmen, especially to the expanding war industries in the cities, which gave more blacks all the associated opportunities and independence.

The Emancipation Proclamation, furthermore, did offer freedom to those who fled to Union lines. It therefore struck at slavery as effectively as any measure that encouraged fugitives, accelerating a process already well underway. Congress's previous abolition in the District of Columbia had brought slaves flocking in from surrounding Maryland, taking that border state one step closer to emancipation.[115] Now runaways crowded into Union camps from all over the South. President Davis of the Confederacy lost a string of domestic servants from Richmond, three escaping in the first month of 1864 alone.[116] By early 1865, at a

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[114]Henry Wilson, *History of the Antislavery Measures of the Thirty–Seventh and Thirty–Eighth United States Congresses, 1861–64* (Boston: Walker, Wise, 1864), pp. 17–37, 273–92; J[ames]. G. Randall, *Constitutional Problems Under Lincoln*, rev. edn. (Urbana: University of Illinois Press, 1951), pp. 342–404; Hans L. Trefousse, *The Radical Republicans: Lincoln's Vanguard for Racial Justice* (New York: Alfred A. Knopf, 1968), pp. 203–30.

[115]Barbara Jeanne Fields, *Slavery and Freedom on the Middle Ground: Maryland During the Nineteenth Century* (New Haven: Yale University Press, 1985), pp. 111–30.

[116]Emory M. Thomas, *The Confederate Nation: 1861–1865* (New York: Harper & Row, 1979), pp. 241–2.

time when Rebel armies were starved for manpower, the Georgia legislature felt

compelled to establish a special cavalry battalion for stopping slaves from

escaping to the enemy. The numbers reaching the sanctuary of Federal

jurisdiction eventually swelled to over half a million.[117]

Blacks outside the 20 percent that Union armies directly liberated

benefited as well. This cumulative percentage, evenly distributed across that

South, translates into a escape probability (p in equation 6.1) of between one in

twenty and one in ten slaves per year, depending on whether the departures are

dated from the war's outset or from the Emancipation Proclamation.[118] Some

whites had expected the proclamation to incite slave insurrection, and reports of

plunder, looting, and arson were not unknown. But since running away was a less

dangerous route to liberty, there was little black violence against former owners.

Nevertheless, as enforcement costs increased for slaveowners, the peculiar

institution crumbled in those areas unreached by Federal troops exactly as

Southerners had feared would happen without vigorous recapture of runaways.

The drain of white males into the Confederate military also contributed to a

decline in supervision. Labor discipline on plantations and farms relaxed. Slaves

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[117]Leon F. Litwack, *Been in the Storm So Long: The Aftermath of Slavery* (New York: Alfred A. Knopf, 1979); Clarence L. Mohr, *On the Threshold of Freedom: Masters and Slaves in Civil War Georgia* (Athens: University of Georgia Press, 1986); Ira Berlin, Barbara J. Fields, Seven F. Miller, Joseph P. Reidy, and Leslie S. Rowland, *Slaves No More: Three Essays on Emancipation and the Civil War* (Cambridge, UK: Cambridge University Press, 1992); Berlin, "Who Freed the Slaves? Emancipation and Its Meaning," in David W. Blight and Brooks D. Simpson, eds., *Union and Emancipation: Essays on Politics and Race in the Civil War Era* (Kent, OH: Kent State University Press, 1997).

[118]A p of 5.426 percent will reduce a static slave population to 80 percent of its original size over four years. A p of 10.5573 will do so over two years.

worked less than before, as they escalated their traditional resort to passive resistance, with insolence and intransigence becoming widespread.

One woman desperately trying to run her husband's plantation finally wrote him that "you may give your negroes away if you won[']t hire them, and I'll move into a white settlement and work with my hands."[119] The productivity of bound labor had plummeted. "The institution of slavery is already so undermined and demoralized," wrote Linton Stephens to his brother, the Confederate Vice–President, in October of 1863, "as never to be of much use to us, even if we had peace and independence to day." It had "received a terrible shock which is tending to its disintegration and ruin."[120] Confronting the inevitable, the Confederacy itself considered freeing its slaves. The Rebel Congress in March of 1865 narrowly authorized the recruitment of 300,000 slaves, while the Davis Administration promised full emancipation to the British and French governments in exchange for recognition. But these desperate measures came too late to preserve southern independence.[121]

The two years since the Emancipation Proclamation meanwhile stiffened northern determination that elimination of slavery must be complete and permanent. The Fugitive Slave Laws of 1793 and 1850 were at last repealed, and

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[119]Mrs. W. H. Neblett to her husband in the spring of 1864, as quoted in Bell I. Wiley, *Southern Negroes, 1861–1865* (New Haven: Yale University Press, 1938), p. 52.

[120]As quoted in J. William Harris, *Plain Folk and Gentry in a Slave Society: White Labor and Black Slavery in Augusta's Hinterlands* (Middletown, CT: Wesleyan University Press, 1985), p. 167.

[121]Robert F. Durden, *The Gray and the Black: The Confederate Debate on Emancipation* (Baton Rouge: Louisiana State University Press, 1972); Ervin L. Jordan, Jr., *Black Confederates and Afro–Yankees in Civil War Virginia* (Charlottesville: University Press of Virginia, 1995).

the border states of Maryland and Missouri freed their slaves.[122] A little more than

two months prior to Confederate General Robert E. Lee's surrender at

Appomattox, two–thirds of Congress passed a proposed thirteenth amendment

that would forever abolish slavery within the United States. At nearly every stage

toward this denouement, the strain on the peculiar institution's enforcement

arising from runaway slaves had been instrumental.

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[122]The repeal is (28 Jun 1864) 13 *Statutes* 200 and is covered in McDougall, *Fugitive Slaves*, pp. 71–88; and Campbell, *The Slave Catchers*, 187–96. For emancipation in Missouri, see William E. Parrish, *Turbulent Partnership: Missouri and the Union, 1861–1865* (Columbia: University of Missouri Press, 1963), pp. 123–207.

TABLE 6.1
Slavery in the Border South, 1830–1860

STATE	YEAR	TOTAL POPULATION	SLAVE POPULATION	PERCENT SLAVES
Delaware	1830	77,000	3,292	4.28
	1840	78,000	2,605	3.34
	1850	92,000	2,290	2.49
	1860	112,000	1,798	1.61
Maryland	1830	447,000	102,994	23.04
	1840	470,000	89,737	19.09
	1850	583,000	90,368	15.50
	1860	687,000	87,189	12.69
Kentucky	1830	688,000	165,213	24.01
	1840	780,000	182,258	23.37
	1850	982,000	210,981	21.48
	1860	1,156,000	225,483	19.51
Missouri	1830	140,000	25,091	17.52
	1840	384,000	58,240	15.17
	1850	682,000	87,422	12.82
	1860	1,182,000	114,931	9.72
All Slave States	1830	5,848,000	2,005,475	34.29
	1840	7,335,000	2,486,082	33.89
	1850	9,665,000	3,204,051	33.15
	1860	12,315,000	3,953,696	32.10

Sources: [U.S.] Bureau of the Census, Department of Commerce, *Negro Population: 1790–1915* (Washington: Government Printing Office, 1918), p. 57; U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series A 172–194, A 195–209, pp. 22–37.

TABLE 6.2
Fugitive Slaves Reported by U.S. Census
(1850 and 1860)

SEVENTH CENSUS (1850)

| | | | PERCENT FUGITIVES | |
STATE	SLAVE POPULATION	NUMBER OF FUGITIVES	Out of Total Pop	Out of Prime Males
Delaware	2,290	26	1.1354	5.6769
Maryland	90,368	279	.3087	1.5437
Virginia	472,528	83	.0176	.0878
North Carolina	288,548	64	.0222	.1109
South Carolina	384,984	16	.0042	.0208
Georgia	381,682	89	.0233	.1167
Florida	39,310	18	.0458	.2289
Kentucky	210,981	96	.0455	.2275
Tennessee	239,459	70	.0292	.1461
Alabama	342,844	29	.0085	.0423
Mississippi	309,878	41	.0132	.0662
Missouri	87,422	60	.0686	.3432
Arkansas	47,100	21	.0446	.2229
Louisiana	244,809	90	.0368	.1838
Texas	58,161	29	.0499	.2493
TOTAL	3,200,364	1,011	.0316	.1580

(continued)

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TABLE 6.2
(continued)

EIGHTH CENSUS (1860)

STATE	SLAVE POPULATION	NUMBER OF FUGITIVES	PERCENT FUGITIVES	
			Out of Total Pop	Out of Prime Males
Delaware	1,798	12	.6674	3.3370
Maryland	87,189	115	.1319	.6595
Virginia	490,865	117	.0238	.1192
North Carolina	331,059	61	.0184	.0921
South Carolina	402,406	23	.0057	.0286
Georgia	462,198	23	.0050	.0249
Florida	61,745	11	.0178	.0891
Kentucky	225,483	119	.0528	.2639
Tennessee	275,719	29	.0105	.0526
Alabama	435,080	36	.0083	.0414
Mississippi	436,631	68	.0156	.0779
Missouri	114,931	99	.0861	.4307
Arkansas	111,115	28	.0252	.1260
Louisiana	331,726	46	.0139	.0693
Texas	182,566	16	.0088	.0438
TOTAL	3,950,511	803	.0203	.1016

Source: [U.S. Census Office, 1860 Census], *Statistics of the United States, (Including Mortality, Property, etc.) in 1860: Compiled from the Original Returns and Being the Final Exhibit of the Eighth Census* (Washington: Government Printing Office, 1866), p. 338.

TABLE 6.3
Phillips's Data on Slave Prices
(Prime Field Hands, 1830–1860)

YEAR(S)	RICHMOND	CHARLESTON	MID–GEORGIA	NEW ORLEANS
1830	$425	$500	$700	$800
1831	450	500	750	850
1832	500	550	800	900
1833	550	600	850	950
1834	600	650	900	1,000
1835	650	750	1,000	1,150
1830-35	**529**	**592**	**833**	**942**
1836	800	1,100	1,200	1,250
1837	1,100	1,200	1,300	1,300
1838	900	1,100	1,175	1,225
1839	1,000	1,150	1,200	1,250
1840	750	775	900	1,000
1836-40	**910**	**1,065**	**1,155**	**1,205**
1841	600	650	775	875
1842	500	600	700	750
1843	500	550	650	750
1844	500	550	650	700
1845	550	600	650	700
1841-45	**530**	**590**	**685**	**755**

(continued)

TABLE 6.3
(continued)

YEAR(S)	RICHMOND	CHARLESTON	MID–GEORGIA	NEW ORLEANS
1846	600	650	700	750
1847	625	700	800	850
1848	650	725	900	950
1849	675	775	950	1,025
1850	700	800	1,000	1,100
1846-50	**650**	**730**	**870**	**935**
1851	$725	$825	$1,050	$1,150
1852	775	850	1,100	1,200
1853	825	950	1,200	1,250
1854	900	1,000	1,250	1,300
1855	950	1,025	1,300	1,350
1851-55	**835**	**930**	**1,180**	**1,250**
1856	1,000	1,075	1,350	1,425
1857	1,025	1,100	1,450	1,500
1858	1,075	1,150	1,550	1,600
1859	1,100	1,200	1,675	1,700
1860	1,200	1,225	1,800	1,800
1856-60	**1,080**	**1,150**	**1,565**	**1,605**

Sources: U. B. Phillips, *Life and Labor in the Old South* (Boston: Little, Brown, 1929), p. 177, as estimated visually from the chart, to the nearest $25, by Robert Evans, Jr., "The Economics of American Negro Slavery," in National Bureau of Economic Research, *Aspects of Labor Economics: A Conference of the Universities–National Bureau Committee for Economic Research* (Princeton, NJ: Princeton University, 1962), p. 199. I have corrected some of Evans's five–year averages.

TABLE 6.4
Fogel and Engerman Data on Slave Prices and Slave Hire Rates
(as Published by Goldin)

YEARS	MARYLAND	VIRGINIA	NORTH CAROLINA	SOUTH CAROLINA
Rural Appraised Prices—Slaves in the Labor Force				
1819–21	$235 (671)	n.a.	n.a.	$469 (95)
1829–31	181 (369)	$218 (75)	n.a.	n.a.
1839–41	338 (467)	432 (182)	$526 (35)	363 (54)
1849–51	360 (279)	472 (162)	545 (77)	572 (138)
1859–61	n.a.	832 (136)	862 (182)	n.a.
Rural Sale Prices—All Slaves				
1819–21	n.a.	n.a.	n.a.	499 (98)
1829–31	n.a.	n.a.	223 (60)	333 (94)
1839–41	357 (83)	459 (45)	387 (175)	498 (184)
1841–59	n.a.	427 (81)	437 (272)	504 (97)
1859–61	n.a.	792 (42)	846 (113)	941 (127)
Rural Annual Hire Rates—All Slaves				
1819–21	24 (127)	51 (52)	n.a.	n.a.
1829–31	19 (76)	38 (16)	23 (372)	n.a.
1839–41	25 (265)	39 (431)	60 (423)	n.a.
1841–59	30 (179)	44 (370)	36 (828)	n.a.
1859–61	n.a.	64 (179)	76 (301)	n.a.

Note: Numbers of observations in the sample are in parentheses. The average prices for slaves in the labor force exclude slaves who were under 10, over 55, sick, or skilled.

Source: Claudia Dale Goldin, *Urban Slavery in the American South, 1820–1860: A Quantitative History* (Chicago: University of Chicago Press, 1976), pp. 72–3 (Table 24).

TABLE 6.5
Slave Hire Rates Reported by the Department of Agriculture
(for 1860)

STATE	ADULT MALES	ADULT FEMALES	YOUTHS
Delaware	n.a.	n.a.	n.a.
Maryland	n.a.	n.a.	n.a.
Virginia	$105	$46	$39
North Carolina	110	49	50
South Carolina	103	55	43
Georgia	124	75	57
Florida	139	80	65
Kentucky	n.a.	n.a.	n.a.
Tennessee	121	63	60
Alabama	138	89	66
Mississippi	166	100	71
Missouri	n.a.	n.a.	n.a.
Arkansas	170	108	80
Louisiana	171	120	72
Texas	166	109	80

Source: U.S. Department of Agriculture, *Report of the Comissioner of Agriculture, for the Year 1867* (Washington: Government Printing Office, 1868), p. 418.

TABLE 6.6
Goldin's Estimates of the
Price Elasticity of Demand for Slaves

CITY OR REGION	ELASTICITY
Baltimore	1.38
Washington	1.03
Louisville	.46
Saint Louis	1.53
Border South Cities	**1.78**
Richmond	.12
Norfolk	.81
Charleston	.72
Savannah	.27
Old South Cities	**.92**
Mobile	.54
New Orleans	.16
New South Cities	**.21**
All Urban Areas	.86
Rural Areas	.05
All Slave States	**.08**

Source: Claudia Dale Goldin, *Urban Slavery in the American South, 1820–1860: A Quantitative History* (Chicago: University of Chicago Press, 1976), pp. 105, 110 (Table 30).

Chapter 7
Emancipation and Deadweight Loss

I

Since slavery's deadweight loss was a drain on the southern economy, emancipation should have brought economic gains. Yet after the Civil War, the South remained one of the country's poorest regions. This relative impoverishment was so apparent to contemporaries and endured for so long that it hardly needed quantification. But its extent and duration became more precisely defined once cliometricians began constructing estimates of regional income. Although Southerners lost between $1.0 and $1.5 billion from property destroyed during the war, a catastrophic sum, the new economic historians have all agreed that the devastation alone cannot explain the persistence of the income gap between North and South.[1] Both Germany and Japan recovered rapidly from much worse destruction after World War II. Such physical damage is usually repaired within less than five years.[2] To explain the collapse in southern output we must look elsewhere.

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[1]Claudia Dale Goldin and Frank D. Lewis calculated wartime destruction in the South to be $1.5 billion in "The Economic Cost of the American Civil War: Estimates and Implications," *Journal of Economic History*, 35 (Jun 1975), 299–322. James L Sellers's older estimate of $1.1 billion is from "The Economic Incidence of the Civil War in the South," *Mississippi Valley Historical Review*, 14 (Sep 1927), 179–91, reprinted in Ralph Andreano, ed., *The Economic Impact of the American Civil War*, 2nd edn. (Cambridge, MA: Schenkman, 1967).

[2]This general phenomenon was recognized as early as 1848 by John Stuart Mill in the first edition of his *Principles of Political Economy* (Boston: Charles C. Little & James Brown, 1848), pp. 94–6. An attempt to explain it by reference to the complementarity of capital is Donald F. Gordon and Gary M. Walton, "A Theory of Regenerative Growth and the Experience of Post–World War II West Germany," in Roger L. Ransom, Richard Sutch, and Walton, eds., *Explorations in the*

Here, however, agreement ends. Cliometricians have come up with a welter of alternative explanations for the economic performance of the postbellum South: (1) Roger L. Ransom and Richard Sutch have offered a comprehensive diagnoses that emphasizes the withdrawal of agricultural labor by blacks, now that they were free.[3] (2) Robert William Fogel and Stanley L. Engerman, in contrast, have stressed the demise of the cotton plantation and of the economies of scale associated with gang labor. (3) Gavin Wright has continued his focus on the world cotton market, arguing that slackening demand would have reduced southern income even without a Civil War. (4) Gerald David Jaynes suggested that emancipation fatally disrupted credit markets in the South by wiping out the major form of prewar collateral, human chattel.[4] (5) Most recently Garland L. Brinkley has presented a bio–medical interpretation that places the blame on hookworm.[5]

A related question has to do with the new arrangement that came to dominate cotton growing: sharecropping. The sharecropper worked small plots of twenty to fifty acres under one–year contracts that split the harvest with the landowner, usually down the middle or somewhere in that vicinity. The fact that southern manufacturing recovered much more rapidly than agriculture, and the

New Economic History: Essays in Honor of Douglass C. North (New York: Academic Press, 1982).

[3]Roger L. Ransom and Richard Sutch, *One Kind of Freedom: The Economic Consequences of Emancipation* (Cambridge, UK: Cambridge University Press, 1977).

[4]Gerald David Jaynes, *Branches Without Roots: Genesis of the Black Working Class in the American South, 1862–1882* (New York: Oxford University Press, 1986).

[5]Garland L. Brinkley, "The Decline in Southern Agricultural Output, 1860–1880," *Journal of Economic History*, 57 (Mar 1997), 116–38.

fact that states of the deep South, where cotton predominated, remained the region's poorest, both lend credence to the common suspicion that this new way of farming was inefficient.[6] Immediately after the war, plantation owners would have preferred revamping the prewar gang system. But they only succeeded on the sugar plantations of Louisiana. Elsewhere planters could not pay wages high enough, frequently enough, or dependably enough to overcome fierce black determination to avoid anything that smacked of their previous servitude.

"Many have said to me," reported a Freedmen's Bureau agent about Mississippi blacks, "they cared not for the pay if they were only treated with kindness and not overworked."[7] Forcing the freedmen back into the gangs was a major reason for the Black Codes imposed by the state governments initially reconstructed under Presidents Abraham Lincoln and Andrew Johnson. But the experience in the West Indies and South America confirms that large plantations almost never survive emancipation—even with vagrancy, debt peonage, or other coercive labor laws—unless land is unavailable or another source of unfree labor is. Whenever southern whites turned to violence or cartels to limit the freedmen's options, the ensuing labor shortage soon caused one or another land owner to

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[6]Class–based indictments of sharecropping attempted by non–economists are Jay R. Mandle, *The Roots of Black Poverty: The Southern Plantation Economy After the Civil War* (Durham, NC: Duke University Press, 1978), and Jonathan M. Wiener, *Social Origins of the New South: Alabama, 1865–1885* (Baton Rouge: Louisiana State University Press, 1978). Wiener's effort, the more historically worthwhile of the two, reveals political and social conflict between landowners and storekeepers. Edward Royce has given us a more recent synthesis in *The Origins of Southern Sharecropping* (Philadelphia: Temple University Press, 1993), confirming that sharecropping was a concession both for planters, who would have preferred gang labor, and for the freedmen, who would have preferred renting or owning land.

[7]Lieutenant James M. Babcock to Major G. D. Reynolds, 30 Nov 1865, as quoted in Eric Foner, *Politics and Ideology in the Age of the Civil War* (New York: Oxford University Press, 1980), p. 107.

break ranks and reopen competition. Blacks preferred being sharecroppers because they could avoid direct supervision. Cropping also became common among poor whites who had lost their land. As late as 1910, 70 percent of black and 40 percent of white farmers in the South were tenants of some kind.[8]

Ransom and Sutch are the most adamant in reaffirming the traditional indictment of sharecropping: "[i]t is our thesis that the lack of progress in the post–emancipation era was the consequence of flawed economic institutions erected in the wake of the Confederate defeat."[9] They further believe that this pernicious new arrangement was fastened upon southern agriculture, in part, through the control over credit that retail merchants exercised. "This power allowed them to extract a monopoly return on the credit they advanced their customers, as well as to force the small farmer to concentrate on the production of cotton at the expense of food production."[10] At the other extreme, such economic historians as Joseph D. Reid, Jr., Stephen J. DeCanio, Lee J. Alston, and Robert Higgs have offered neo–classical defenses of sharecropping's efficiency.[11]

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[8]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series K109–153.

[9]Ransom and Sutch, *One Kind of Freedom*, p. 2. A summary of Ransom and Sutch's perspective on sharecropping is "Sharecropping: Market Response or Mechanism of Control?" in David G. Sansing, ed., *What Was Freedom's Price?* (Jackson: University of Mississippi, 1978).

[10]Ransom and Sutch, *One Kind of Freedom*, p. 13.

[11]Joseph D. Reid, Jr., "Sharecropping as an Understandable Market Response: The Postbellum South," *Journal of Economic History*, 33 (Mar 1973), 106–130, revised and reprinted in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2 (New York: W. W. Norton, 1992); Stephen J. DeCanio, *Agriculture in the Postbellum South: The Economics of Production and Supply* (Cambridge, MA: MIT Press, 1974); Lee J. Alston and Robert Higgs, "Contractual Mix in Southern Agriculture Since the Civil War: Facts, Hypothesis and Tests," *Journal of Economic History*, 42 (Jun 1982), 327–353.

Still other economic historians occupy a somewhat amorphous, middle–ground between the extremes. Fogel and Engerman, Jaynes, and Ralph Shlomowitz, a Fogel student, view sharecropping as less productive for varied reasons than the plantation system that had preceded it yet nonetheless roughly optimal given postwar economic constraints.[12] "The conjecture that the decline in productivity was due to the rise of sharecropping also appears to be erroneous," declares Fogel:

> . . . the margin of difference between sharecroppers and cash renters was too small to explain more than a small portion of the postwar decline in labor productivity. . . . The breakup of the gang system, with loss of the productivity advantages associated with, appears to be by far the largest factor in postwar decline.[13]

Wright and his co–author, Howard Kunreuther, accept Ransom and Sutch's cotton–overproduction thesis but give it a far less melodramatic rendition.[14] Wright also discovers serious imperfections in the operation of labor markets between North and South.[15]

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[12]Ralph Shlomowitz, "The Origins of Southern Sharecropping," *Agricultural History*, 53 (Jul 1979), 557–575; Shlomowitz, "Plantations and Smallholdings: Comparative Perspectives from the World Cotton and Sugar Cane Economies, 1865–1939," *ibid.*, 58 (Jan 1984), 1–16; Shlomowitz, "'Bound' or 'Free'? Black Labor in Cotton and Sugar Cane Farming, 1865–1880," *Journal of Southern History*, 50 (Nov 1984), 569–96, revised and reprinted in Fogel and Engerman, eds., *Without Consent or Contract—Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2.

[13]Robert William Fogel, *Without Consent or Contract: The Rise and Fall of American Slavery* (New York: W. W. Norton, 1989), p. 100.

[14]Gavin Wright and Howard Kunreuther, "Cotton, Corn and Risk in the Nineteenth Century," *Journal of Economic History*, 35 (Sep 1975), 526–551.

[15]Gavin Wright, *Old South, New South: Revolutions in the Southern Economy Since the Civil War* (New York: Basic Books, 1986).

As we proceed to evaluate these competing views both on the collapse of southern output and the efficiency of sharecropping, we will discover some merit in many of them.[16] But none, in my opinion, have paid sufficient attention to the deleterious impact of wartime finance. The measures employed by the Union to cover the Civil War's enormous costs were riddled with burdens that fell disproportionately upon the South after the conflict ended. Thus, another unrecognized cause of postwar southern poverty was not *economic* exploitation but the North's *political* exploitation of this defeated region.

II

It is possible to overplay the postwar woes of the southern economy. Recall from Chapter 4 that, going into the conflict, output per person in the slave states was already noticeable below that in the free states—*if* you include slaves as part of the population, which of course is the only way that pre– and post–emancipation comparisons make any sense. Recall also that there is little indication that per capita income in the South was converging on that of the North over the decades leading up to 1860, and some, very tentative evidence that the long–run trend, going back to the colonial period, was for the gap to widen. With these strictures in mind, let us scrutinize the precise magnitude of the economic collapse.

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[16]Brief historiographical reviews with particular emphasis on the economic ramifications of emancipation include Patrick K. O'Brien, *The Economic Effects of the American Civil War* (Basingstoke, U.K.: Macmillan Education, 1988); Jeremy Atack and Peter Passell, *A New Economic View of American History: From Colonial Times to 1940*, 2nd edn. (New York: W. W. Norton, 1994), pp. 376–401; and Robert A. Margo, "The South as an Economic Problem: Fact or Fiction?" in Larry J. Griffin and Don H. Doyle, eds., *The South as an American Problem* (Athens: University of Georgia Press, 1995).

Table 7.1 presents Richard A. Easterlin's estimates of relative income for each region from 1840 to 1950.[17] They carry forward the antebellum estimates that we discussed in Chapter 4 and appeared in Table 4.2. The post–Civil War figures are more dependable—and become more so as we move forward in time—being based on superior census data starting in 1880. They show income per capita in the South falling from 72 percent of the national average in 1860 to 51 percent in 1880, where it remained twenty years later at the turn of the century. Unfortunately the figures in Table 7.1 are not entirely comparable across time, because the West South Central region does not include Texas until 1880, and beginning in 1900 it adds in Oklahoma as well. Moreover, these are relative figures and do not tell us about the absolute level of income. If we apply Easterlin's 1880 percentage to Robert E. Gallman's estimate of the country's total output, then output per person for the southern states becomes $85. That represents a 15 percent decline from South's per capita income in 1860, using my own revised estimate of $100 (Table 4.6).[18] The same procedure for 1900 shows southern per capita income up to $116, noticeably above its 1860 level.[19]

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[17]Richard A. Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth Series, v. 24 (Princeton, NJ: Princeton University Press, 1960); Easterlin, "Regional Income Trends, 1840–1950," in Seymour E. Harris, ed., *American Economic History* (New York: McGraw–Hill, 1961).

[18]If we make the comparison with Easterlin's original relative instead (which excludes Texas), the fall is only 9 percent, from $92 per capita in 1860 (1860 prices).

[19]Robert E. Gallman, "Gross National Product in the United States, 1834–1909," in National Bureau of Economic Research, *Output, Employment and Productivity in the United States After 1800*, Studies in Income and Wealth Series, v. 30 (New York: Columbia University Press, 1966), p. 24. Gallman does not provide an estimate of total output for 1880 (1879) and 1900 (1899) alone but rather decade averages for 1874 to 1883 of $8.4 billion (1860 prices) and for 1894 to 1903 of

To get a tighter bead on the economic fortunes of the states that had

seceded from the Union, Stanley L. Engerman derived the estimates appearing in

Table 7.2.[20] They were based on Gallman's series for commodity output alone.[21]

Using proxies from the census data, Engerman divided the country's commodity

output for 1860, 1870, and 1880 between the eleven states of the Confederacy and

the remainder of the country. Because these numbers only include agriculture,

manufacturing, and mining (and therefore exclude all output from the commercial

and service sectors), they cannot provide comparisons of output *levels* between

the two sections, as do Easterlin's percentages in Table 7.1. But they can give a

rough indication of comparative output *growth*. The South's commodity output

did not return to its 1860 level until nearly two decades later, and since population

had also risen, output per person in 1880 was still 20 percent below prewar levels.

Ten years earlier, in 1870, per capita output was nearly a staggering 40 percent

below what it was in 1860.

Marvin Fischbaum and Julius Rubin pointed out that Table 7.2 may

overstate the oscillations in southern income. Engerman constructed his estimates

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$17.3 billion (1860 prices). Dividing by a total U.S. population of 50.2 million in 1880 yields a national average of $167 per capita, of which 51 percent is $85. Dividing by a total population of 76.0 million in 1900 yields a national average of $227, of which 51 percent is $116. Stanley L. Engerman performed these same calculations in "Economic Adjustments to Emancipation in the United States and British West Indies," *Journal of Interdisciplinary History* (Autumn 1982), 206–7. Gallman's estimates of total output are not the only available for this period, and Fogel, *Without Consent or Contract*, p. 89, presents figures for 1880 that are trivially higher: a national average of $173 per capita and a southern average of $88 per capita (1860 prices).

[20]Stanley L. Engerman, "The Economic Impact of the Civil War," *Explorations in Entrepreneurial History*, 2nd ser., 3 (Spring/Summer 1966), 176–99; reprinted in both Robert William Fogel and Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971), and Andreano, ed., *The Economic Impact of the American Civil War*.

[21]Robert E. Gallman, "Commodity Output, 1839–1899," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*.

with constant 1879 prices. That way he could tell what was happening to *physical* output. But in an export economy, such as the cotton South, "falling output can be associated with improving terms of trade," wrote Fischbaum and Rubin, and therefore "we cannot infer from this a corresponding fall in incomes."[22] In other words, the decline in cotton output might be offset by a increase in cotton prices, and vice versa. Engerman therefore revised his estimates in a 1971 article.[23] He added Kentucky into South (although not Delaware, Maryland, or Missouri), dropped out mining so that the numbers reflected only agriculture and manufacturing, and presented the resulting per capita output in both constant (1879) prices and current prices (i.e., unadjusted for any inflation or deflation). All these changes registered a more mild drop in southern income from 1860 to 1870 and a slower rise from 1870 to 1880, but the basic story was unaltered.[24] Southern output per person was still not back to pre–Civil War levels twenty years later.

One correction Engerman did not fully attempt was for errors in the 1870 Census. The Census Office eventually acknowledged a substantial undercounting in the former Confederate states and raised the official 1870 total for the white

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[22]Marvin Fischbaum and Julius Rubin, "Slavery and the Economic Development of the American South," *Explorations in Entrepreneurial History*, 2nd ser., 6 (Fall 1968), 119.

[23]Stanley L. Engerman, "Some Economic Factors in Southern Backwardness in the Nineteenth Century," in John F. Kain and John R. Meyer, eds., *Essays in Regional Economics* (Cambridge, MA: Harvard University Press, 1971).

[24]Engerman's revisions with constant (1879) prices showed per capita output in the South falling from $77 in 1860 to $50 in 1870 (35 percent) and rising to $62 in 1880 (24 percent). With current prices, per capita output fell from $78 in 1860 to $55 in 1870 (29 percent) and rose to $62 in 1880 (13 percent).

population by 2.2 percent and for the black population by 9.5 percent.[25] Most likely the underenumeration extended from southern population to agricultural and manufacturing statistics.[26] In that case, Engerman would have assigned the South less than its actual share of total commodity output in 1870. This error would only be compounded after Engerman converted to a per capita basis using the higher, adjusted population estimates. The overall effect is to make the South look poorer than it actually was in 1870. Rather than 40 percent below its prewar level, income per capita may have fallen by less than 20 percent.[27]

That is still substantial. After 1870, however, the South again grew. No matter how you figure it, real output per person showed annual increases. And by the turn of the century, the South was actually growing faster than the North. The iron law of convergence slowly but surely brought the region's income up to the national average, and almost as rapidly as could reasonably be expected. Robert

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[25]U.S. Census Office, [1880 Census], *Compendium of the Tenth Census (June 1, 1880)* (Washington: Government Printing Office, 1883), pp. liv–lxxvi; U.S. Census Office, [1890 Census], *Compendium of the Eleventh Census: 1890*, v. 1 (Washington: Government Printing Office, 1892), pp. xxxv–xliii.

[26]The 1870 underenumeration is discussed in Roger L. Ransom and Richard Sutch, "The Impact of the Civil War and of Emancipation on Southern Agriculture," *Explorations in Economic History*, 12 (Jan 1975), 6–11, and Ransom and Sutch, *One Kind of Freedom*, pp. 53–4, 329. The co–authors conclude that the official population adjustment actually overcorrected.

[27]In a footnote, Engerman, "Some Economic Factors in Southern Backwardness in the Nineteenth Century," p. 291 (n. 28), replaced Gallman's estimates of agricultural output with those of Marvin W. Towne and Wayne D. Rasmussen, "Farm Gross Product and Gross Investment in the Nineteenth Century," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*. The results dampen the oscillations further, reducing the fall in the South's per capita output between 1860 and 1870 to 20 percent. Since Towne–Rasmussen used higher estimates of cotton output from the U.S. Department of Agriculture, rather than census data, they partly correct for the 1870 underenumeration. And since the North grew no cotton, all the increase gets assigned to the South. But Engerman still had to employ the faulty census data to allocate other agricultural output between regions, and therefore the Towne–Rasmussen series does not fully correct the downward bias.

A. Margo has shown that substituting midwestern rates of increase would not have accelerated the South's convergence significantly.[28] In fact, even prior to 1900 the growth rates of some former slave states, notably Virginia, Texas, and Florida, were outpacing the rest of the country. Several years prior to publication of the estimates in Table 7.1, Easterlin had already presented state-by-state figures for 1880 and 1900 on personal income.[29] These showed considerable variation in per capita growth among the southern states, as displayed in Table 7.3. Notice that the five states that performed the worst were from the cotton South: South Carolina, Georgia, Alabama, Mississippi, and Louisiana.

There is no doubt that the southern economy received a severe negative shock in the 1860s. But much of the South's wartime destruction *was* repaired rapidly. Historian John Stover has noted that the "physical restoration and rehabilitation of southern railroads was practically complete" by 1870.[30] Southern manufacturing, likewise, had regained its prewar levels only four years after the war.[31] Where the shock was centered and persisted was in the South's agricultural sector, particularly in cotton, sugar, and rice. Yet after this once-and-for-all

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[28]Margo, "The South as an Economic Problem: Fact or Fiction?" pp. 170–4.

[29]Richard A. Easterlin, "State Income Estimates," in Simon Kuznets and Dorothy Swaine Thomas, eds., *Population Redistribution and Economic Growth, United States, 1870–1950*, v. 1, *Methodological Considerations and Reference Tables* (Philadelphia: American Philosophical Society, 1957); Easterlin, "Regional Growth of Income: Long Term Tendencies, 1880–1950," in *ibid.*, v. 2, *Analyses of Economic Change* (Philadelphia: American Philosophical Society, 1960).

[30]John R. Stover, *The Railroads of the South: 1865–1900: A Study of Finance and Control* (Chapel Hill: University of North Carolina Press, 1955), p. 58.

[31]Eugene M. Lerner, "Southern Output and Agricultural Income, 1860–1880," *Agricultural History*, 33 (Jul 1959), 117–25, reprinted in Andreano, ed., *The Economic Impact of the American Civil War*; Ransom and Sutch, *One Kind of Freedom*, pp. 42–4.

reduction in income, the South resumed sustained economic growth. Engerman advises us that, "statistically, the postbellum South was not a stagnant economy, but one which [was] growing rapidly by historical standards."[32] And Gallman adds that "[a]gainst the standard provided by most societies of that day, the South was *still* not unusually poor."[33] This has led Robert Higgs to conclude that "scholars have too often exaggerated the problems of Southern development." Given emancipation's "revolutionary restructuring of property rights" and its "blow to the Southern asset structure," the equilibrating adjustment of regional incomes was going to take time; "it is perhaps most remarkable that the Southern economy managed to rebound as quickly as it did."[34]

III

Roger L. Ransom and Richard Sutch's 1977 volume, *One Kind of Freedom: The Economic Consequences of Emancipation*, was the crowning product of the Southern Economic History Project, started in Berkeley, California, nearly ten years prior and funded lavishly by the National Science Foundation. The core data for the project was a sample of 11,202 southern farms drawn from the manuscript schedules of the 1880 Census, and a series of preliminary journal

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[32]Engerman, "Economic Adjustments to Emancipation in the United States and British West Indies," 297.

[33]Robert E. Gallman, "Slavery and Southern Economic Growth," *Southern Economic Journal*, 45 (Apr 1979), 1013.

[34]Robert Higgs, *The Transformation of the American Economy, 1865–1914: An Essay in Interpretation* (New York: John Wiley & Sons, 1971), pp. 108, 114.

articles had prefigured the volume's major hypotheses.[35] As a result, Ransom and Sutch's book has almost become for postbellum sharecropping what Robert W. Fogel and Stanley L. Engerman's *Time on the Cross* became for antebellum slavery. Appearing three years after *Time on the Cross*, *One Kind of Freedom* similarly inspired a major scholarly conference devoted to it, at Duke University in February 1978, culminating in a published collection of critical articles, all reprinted from *Explorations in Economic History* and edited by Gary M. Walton and James F. Shepherd.[36] The most robust finding of Ransom and Sutch was that wartime losses cannot fully explain the abrupt deepening of southern backwardness. This directed the two authors to the crucial social and institutional change that can: the abolition of slavery.

Emancipation itself was a transfer, from the slaveholders to their chattels, and did not leave the region with any fewer resources. The total value of all slaves in the United States as of 1860 is estimated at between $2.7 and $3.7 billion.[37]

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[35]Roger L. Ransom and Richard Sutch, "Debt Peonage in the Cotton South After the Civil War," *Journal of Economic History*, 32 (Sep 1972), 641–69; Ransom and Sutch, "The Ex–Slave in the Post–Bellum South: A Study of the Economic Impact of Racism in a Market Environment," *ibid.*, 33 (Mar 1973), 131–48; Ransom and Sutch, "The Impact of the Civil War and of Emancipation on Southern Agriculture"; Ransom and Sutch, "The 'Lock–in' Mechanism and Overproduction of Cotton in the Postbellum South," *Agricultural History*, 49 (Apr 1975), 405–25.

[36]Gary M. Walton and James F. Shepherd, eds., *Market Institutions and Economic Progress in the New South 1865–1900: Essays Stimulated by* One Kind of Freedom: The Economic Consequences of Emancipation (New York: Academic Press, 1981).

[37]Claudia Goldin provides the more often cited lower figure in "The Economics of Emancipation," *Journal of Economic History*, 33 (Mar 1973), 66–85, reprinted in Fogel and Engerman, eds., *Without Consent or Contract—Conditions of Slave Life and the Transition to Freedom: Technical Papers*, v. 2. The higher figure comes from Louis Rose, "Capital Losses of Southern Slaveholders Due to Emancipation," *Western Economic Journal*, 3 (Fall 1964), 39–51. Roger L. Ransom and Richard Sutch, "Capitalists Without Capital: The Burden of Slavery and the Impact of Emancipation," *Agricultural History*, 62 (Summer 1988), 133–60, put the number at $3.1 billion, midway between the two.

Abolition expropriated this entire sum from slaveholders and restored it to the freed slaves. Because the subjective value of freedom to blacks was almost invariably higher than their monetary value as slaves, emancipation's welfare gains actually exceeded those amounts. But though this transfer did not destroy any assets, we would expect it to affect how much and how hard blacks worked, and indeed, once free, they decided to enjoy more leisure. Women and children abandoned the fields, and even black males cut back. "Most of the field labor is now performed by men," complained *De Bow's Review*, "the women regarding it as the duty of their husbands to support them in idleness."[38] The total labor supplied by former slaves fell by between one–fourth and one–third, according to Ransom and Sutch. Here we encounter a dramatic demonstration of the limitations of economic aggregates for measuring well–being. Income per capita went *down* because people were *better* off. They were working less or producing household amenities, both of which represented improvements in the quality of life.

The authors of *One Kind of Freedom* divided this work cutback into three components.[39] The largest component, and the best documented, is the falling share of the black population in the labor force, mainly due to the withdrawal of women, children, and the elderly. This alone reduced the aggregate input of black labor between 17 and 24 percent. The second component is a decline in days worked per year. Ransom and Sutch cite several contemporary sources to the

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[38]*De Bow's Review*, new ser., 1 (Jan 1866), 659.

[39]Ransom and Sutch, "The Impact of the Civil War and of Emancipation on Southern Agriculture," and *One Kind of Freedom*, pp. 44–55, 232–6.

effect that freedmen—whether wage hands, croppers, or tenants—rarely labored on Saturdays, or Sundays, and therefore averaged no more than five workdays a week. This change from the plantation regime of regular Saturday field work not only lowered the labor input between 8 and 11 percent, but it also casts further doubt on John F. Olson's contention, discussed in Chapter 5, that antebellum free farmers, North and South, put in as many hours as enslaved field hands.[40] The most conjectural of the three components of labor reduction, but also the least crucial, is Ransom and Sutch's thinly supported assumption that free blacks worked one less hour per day than slaves. This "by itself" would only "reduce the available labor supply by 9 to 10 percent."[41]

One Kind of Freedom, in short, measured the degree to which the South's peculiar institution had indeed operated like a tax on leisure and coerced blacks into working more than otherwise:

> Not the least of the changes blacks made in their consumption patterns was sharply to increase their consumption of "leisure." As slaves, blacks were compelled to work long hours with few days off. Women, adolescents, and the aged were all expected—and forced—to work as long and as often as the men. When free to set their own hours of work, the ex–slaves, quite predictably, chose to exchange a fraction of their potential income for "free" time: time for leisure, housekeeping, child care—in short, time for all the activities of men and women other than those

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[40]John F. Olson, "Clock Time versus Real Time: A Comparison of the Lengths of the Northern and Southern Agricultural Work Years," in Robert William Fogel and Stanley L. Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992). Olson, however, argues on p. 239 (n. 29) that Ransom and Sutch overestimate the number of hours that slaves worked per day.

[41]Ransom and Sutch, *One Kind of Freedom*, p. 236.

designed to earn a material income. They duplicated (perhaps emulated) the work–leisure patterns of other free Americans. Adolescents in their early teens, women with children, and elderly men and women all worked significantly fewer hours per day and fewer days per year than had been the standard under the oppression of slavery. Even the adult men chose to work less. The cumulative effect was quite spectacular. . . .[42]

Ransom and Sutch claimed that their highest estimate of the labor cutback would not only account for the entire post–emancipation fall in southern output but also imply that the region's labor productivity had risen. Fogel and Engerman, in keeping with their opinions about slavery's efficiency, rejected a fall in labor as the primary factor in the South's economic difficulties. They attached greater importance to emancipation's destruction of plantation agriculture, with its scale economies. Even before *One Kind of Freedom* was published, Claudia Goldin and Frank Lewis had expressed skepticism about how much of the South's economic sluggishness could be attributed to increased black leisure.[43] Goldin was particularly skeptical about the decline in female labor and subsequently used Fogel and Engerman's productivity data to argue that a full accounting must combine the impacts of a fall in labor supply and loss of scale economies.[44] But

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[42]*Ibid.*, pp. 5–6.

[43]Goldin and Lewis, "The Economic Cost of the American Civil War: Estimates and Implications," 314–5. They determined that blacks working less reduced monetary consumption at most by $1.96 billion, or only one–third of their estimated total for the South's indirect losses from the war.

[44]Claudia Goldin, "*'N'* Kinds of Freedom: An Introduction to the Issues," *Explorations in Economic History*, 16 (Jun 1979), 8–16, revised and reprinted under the title "Credit Merchandising in the New South: The Role of Competition and Risk," in Walton and Shepherd, eds., *Market Institutions and Economic Progress in the New South 1865–1900*. Goldin also correctly points out that Ransom and Sutch overstate the magnitude of their labor–supply thesis by

Fogel himself has gone so far as to deny any measurable change at all in black labor over the long run. "It is likely," he does admit, "that there was a sharp reduction in the labor force participation rate" during the transitional years up to 1870:

> However, during the 1870s the labor situation began to stabilize and production of the principal staples began to exceed prewar levels. By 1880, the labor force participation rate of blacks was probably quite close to the prewar levels. This conclusion is implied by the finding that virtually all of the decline in per capita income between 1860 and 1880 was due to the decline in labor productivity. The finding means that there is no room for a substantial labor withdrawal in 1880.[45]

Fogel is here relying upon studies by Donghyu Yang and Jon R. Moen. Yang shows the implausibility of a simultaneous decline in *both* labor productivity and labor–force participation. For output to attain its recorded levels, the productivity of non–agricultural labor in the southern states would then have had to rise too rapidly. But since the two hypotheses about the South's agricultural labor are ultimately alternatives, Yang has conducted a sterile exercise that merely assumes what it claims to prove. More interesting but no more relevant is Yang's manipulations of Stanley L. Lebergott's wage data, yielding for the South from 1860 to 1880 a fall in monthly farm wages relative to the value of farm output. If accurate, this would be a curious fact requiring some resolution, but it could hardly tell us anything about the disappearance of plantation gangs. Gangs only utilized slave labor and never hired labor, as Fogel

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assuming fixed factor proportions in cotton production. See Ransom and Sutch, *One Kind of Freedom*, p. 47.

[45]Fogel, *Without Consent or Contract*, p. 102.

and Engerman have repeatedly proclaimed, so such a wage change could only reflect on the productivity of *free* farm labor.[46]

Moen's heftier study takes advantage of both the Parker–Gallman sample for 1860 and the Ransom–Sutch sample for 1880. It employs the geometric index of total factor productivity to make the kind of comparison between ante– and postbellum southern agriculture that Fogel and Engerman made between northern and southern and between free and slave. And the same kinds of objections that we brought up in Chapter 5 apply: Moen implicitly assumes a simplistic, Cobb–Douglas production function, with free and slave labor treated as perfect substitutes and factor proportions held constant over twenty years, despite considerable evidence, which he himself presents, that the proportions changed. He furthermore measures the land and capital inputs according to their value without any consideration of how a significant reduction in labor might affect such measures.[47]

In any event, as we have already demonstrated, any alleged scale economies in cotton production resulted entirely from bondsmen worker harder or

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[46]Donghyu Yang, "Explanations for the Decline in Southern Per Capita Income, 1860–1880," in Robert W. Fogel, Ralph A. Galantine, and Richard L. Manning, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Evidence and Methods* (New York: W. W. Norton, 1992), no. 38; Stanley Lebergott, *Manpower in Economic Growth: The American Record since 1860* (New York: McGraw–Hill, 1964), p. 539.

[47]Jon R. Moen, "Changes in the Productivity of Southern Agriculture between 1860 and 1880," in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1. Although Moen supports his conclusions with the same "price dual" presented by Yang, his major evidence is productivity calculations. Other potential objections are to Moen's augmentation of the 1880 labor input above the raw sample data and to the way he cleaned the Ransom–Sutch sample of fully one–third of its allegedly faulty observations. Several thousand of the latter involved farms reporting outputs but zero values for one or more of the inputs. To the extent these were tenants or sharecroppers, whose land and capital were already counted with the owner's farm, Moen has biased productivity in 1880 downward.

longer. Which means that the competing explanations of Ransom–Sutch and Fogel–Engerman are, in fact, functionally equivalent. They are simply describing a decreased labor input in different ways. Gallman recognized this equivalence when he wrote that "the distinction between the . . . positions is unimportant" because "the economies of scale attained by the pre–war plantations" were "dependent on compulsion."[48] The only really unsettled issue is how much of the decline resulted from blacks working fewer hours (on the part of either sex and all ages) and how much resulted from blacks working less intensely per hour.

One study has made a stab at distinguishing between the two. James R. Irwin constructed regressions from published census data for the counties of eleven former slave states (omitting Delaware, Florida, Missouri, and Texas). Controlling for the inputs of land, capital, and working livestock, he found that each county's fall in agricultural output per person between 1860 and 1880 correlated closely with *either* (1) the proportion of slaves in the rural population or (2) the proportion in the rural population on plantations with twenty or more slaves. These correlations accord well with the hypothesis that the South's post–emancipation economy experienced a significant withdrawal of black labor. But when Irwin put both variables into his equation, only the second maintained its explanatory power while the first became insignificant. This suggested to Irwin

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[48]Gallman, "Slavery and Southern Economic Growth," 1013 (n. 12). Ransom and Sutch themselves display considerable ambivalence about economies of scale in *One Kind of Freedom.* On p. 73 they state "there is reason to doubt the premise that substantial scale–related economies existed in cotton agriculture before the war" and yet on the very next page they concede that "[c]learly, there was some advantage to large–scale operation." But they do recognize that a coercively augmented labor input is the kind of "scale economies" Fogel and Engerman have in mind.

that the labor withdrawal was concentrated among blacks working on large plantations.[49]

Unfortunately, "the underlying specification of production is Cobb–Douglas" for Irwin's regressions, just as with the geometric index of total factor productivity, and similarly suppresses all the observed change in the agricultural mix of land, labor, and capital between 1860 and 1880. One of Irwin's footnotes also disarmingly admits and then off–handedly dismisses "a possible problem with multicollinearity," to use statistical jargon. The fact that the proportion of slaves and the proportion of slaves on large plantations have a correlation coefficient of 94 percent makes any regression using both variables somewhat suspect. Moreover, Irwin himself points out that large plantations may not have worked slaves more intensely than small farms but may have been merely better at increasing the labor–force participation of women and children. Finally, because his data include Louisiana, South Carolina, and Georgia, it combines the cultivation of cotton with that of sugar and rice, where there *were* advantages for large plantations. This muddies any possible conclusions about cotton growing alone.[50]

Garland L. Brinkley has also employed county–level regressions to support an alternative hypothesis.[51] He has found a relationship in Alabama,

[49]James R. Irwin, "Explaining the Decline in Southern Per Capita Output after Emancipation," *Explorations in Economic History*, 31 (Jul 1994), 336–56. See also Irwin, "Farmers and Laborers: A Note on Black Occupations in the Postbellum South," *Agricultural History*, 64 (Nov 1990), 53–60.

[50]*Ibid.*, 344 (n. 25, 27).

[51]Brinkley, "The Decline in Southern Agricultural Output, 1860–1880."

Louisiana, North Carolina, and Tennessee between agricultural output and the incidence of hookworm, both across counties and over time, from 1860 to 1880. With the disruptions of the Civil War, hookworm spread throughout the South until it afflicted 40 percent of the population. In other words, Brinkley believes that there was a postwar labor withdrawal—aggravated by a parasite that made workers listless and unproductive. But his control variables for slave numbers and the black population demonstrate that hookworm could not have been the sole factor and that a desire for more leisure, independent of disease, remains crucial. Brinkley's hypothesis, moreover, could apply only to the American South and not provide any clues to the strikingly similar declines that took place almost everywhere within the Western Hemisphere that slavery was abolished.

Although Engerman has been more cautious than Fogel about rejecting entirely any decline in the labor–force participation of blacks, he has tried to bolster the case for lost efficiencies from large cotton plantations by looking closely at other post–emancipation societies.[52] "The economic difficulties of the

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[52]Stanley L. Engerman, "Quantitative and Economic Analysis of West Indian Slave Societies: Research Problems," in Vera Rubin and Arthur Tuden, eds, *Comparative Perspectives on Slavery in New World Plantation Societies* (New York: New York Academy of Sciences, 1977); Engerman, "Notes on the Patterns of Economic Growth in the British North American Colonies in the Seventeenth, Eighteenth and Nineteenth Centuries," in Paul Bairoch and Maurice Lévy–Leboyer, eds., *Disparities in Economic Development since the Industrial Revolution* (London: Macmillan Press, 1981); Engerman, "Economic Adjustments to Emancipation in the United States and the British West Indies"; Engerman, "Economic Change and Contract Labor in the British Caribbean: The End of Slavery and the Adjustment to Emancipation," *Explorations in Economic History*, 21 (Apr 1984), 133–50; Engerman, "Past History and Current Policy: The Legacy of Slavery," in Richard F. America, ed., *The Wealth of Races: The Present Value of the Benefits From Past Injustices* (New York: Greenwood Press, 1990); Engerman, "Coerced and Free Labor: Property Rights and the Development of the Labor Force," *Explorations in Economic History*, 29 (Jan 1992), 21–3.

postbellum South were not unique," Engerman quite correctly observes.[53] But the comparisons, properly interpreted, actually undermine his case. No one doubts that sugar or rice production exhibited genuine economies of scale. With emancipation, the former slaves abandoned those plantations as well, wherever they could. The end of slavery therefore usually brought about drastic collapses in the production of such staples, as the freedmen switched to small farms growing food for either subsistence or local markets.

The exceptions occurred where land was scarce or other labor available. Antigua, Barbados, and Saint Kitts were so densely populated that the freedmen had no option but to continue sugar cultivation. On the tiny island of Sint Maarten/Saint Martin, divided between the Dutch and French, the French abolished slavery first. Yet labor was so abundant relative to land that some free blacks from the French section reenslaved themselves to the Dutch in order to find work.[54] British Trinidad, on the other hand, was relatively underpopulated, and former slaves easily moved to unoccupied land. Planters were only able to sustain sugar production with government–subsidized indentured labor from China and India. Cuba after ending slavery in 1886 similarly avoided a fall in sugar output with contract labor from China. Among most sugar colonies,

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[53]Stanley L. Engerman, "Slavery and Emancipation in Comparative Perspective: A Look at Some Recent Debates," *Journal of Economic History*, 46 (Jun 1986), 333.

[54]J. Hartog, *History of Sint Maarten and Saint Martin* (Philipsburg, Sint Maarten: Sint Maarten Jaycees, 1981).

however, from Jamaica through Guadeloupe to Surinam, production plummeted after slavery's abolition.[55]

In the southern United States, by contrast, the demise of the plantation did not bring an end to cotton cultivation. "Rice cultivation in South Carolina and Georgia was never to recover," writes agricultural historian Paul W. Gates.[56] And Louisiana sugar output fell by 75 percent through 1870, only to rebound after the state's sugar (and also rice) plantations began attracting wage labor.[57] But the South was regularly exporting as much cotton as ever by 1880. Cotton output, if anything, was expanding at the expense of foodstuffs, so that the region was no longer feeding itself. "The South was unusual among the ex–slave economies," notes Engerman, "in the maintenance and, in some regions, the increase in the share of export production in agricultural output after the initial period of adjustment." White farmers were also growing more cotton. "One of the most significant shifts in the postbellum South, with no parallel in the West Indies, was

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[55]Comparisons of the American South after slavery's abolition with other countries that abolished the institution, in addition to the articles of Engerman cited above, include Willemina Kloosterboer, *Involuntary Labour Since the Abolition of Slavery* (Leiden: E. J. Brill, 1960), pp. 191–4; the contributions of George M. Fredrickson and C. Vann Woodward to David G. Sansing, ed., *What Was Freedom's Price?*; Eric Foner, *Nothing But Freedom: Emancipation and Its Legacy* (Baton Rouge: Louisiana State University Press, 1985); Roger L. Ransom and Kerry Ann Odell, "Land and Credit: Some Historical Parallels Between Mexico and the American South," *Agricultural History*, 60 (Winter 1986), 4–31; and Peter Kolchin, "Some Controversial Questions Concerning Nineteenth–Century Emancipation from Slavery and Serfdom," in M. L. Bush, ed., *Serfdom and Slavery: Studies in Legal Bondage* (London: Longman, 1996).

[56]Paul W. Gates, *Agriculture and the Civil War* (Alfred A. Knopf, 1965), p. 373.

[57]Sugar and cotton's divergent institutional responses to emancipation is highlighted in Shlomowitz, "Plantations and Smallholdings: Comparative Perspectives from the World Cotton and Sugar Cane Economies, 1865–1939."

to a more extensive production of cotton by white farmers on small farms."[58]

These trends are the exact reverse of what would be expected, and what did happen, when scale economies were present.

Plantations everywhere induced black slaves to toil harder than hired workers. As soon as blacks achieved freedom, they sought to desert the plantations. When the crops previously grown required economies of scale, such as sugar and rice, ex–slaves became a "reconstituted peasantry," to borrow an apt phrase from Sidney W. Mintz.[59] When the crops required no scale economies, such as cotton and tobacco, the ex–slaves continued to grow staples for export. Both transitions involved a large decline in monetary income, because the freedmen were no longer working as much as they had as slaves. If we return to Figure 3.1 in Chapter 3, what happened was that the supply curve for labor shifted inward from S_{slave} to S_{free}, reducing labor input from L_1 to L_2. Thus, the post–emancipation drop in output, not only in the United States but throughout the West Indies, gives us perhaps the best of all measures for the burden imposed on slaves by the institution's output inefficiency. The former slaves, after all, demonstrated a preference for the leisure over the money.

Using our estimate of the decline in southern income per person to 1880, 15 percent, and applying that to the region's total income of $1,026 million in

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[58]Engerman, "Economic Adjustments to Emancipation in the United States and British West Indies," 211.

[59]Sidney W. Mintz, "Slavery and the Rise of Peasantries," in Michael Craton, ed., *Roots and Branches: Current Directions in Slave Studies* (Toronto: Pergamon Press, 1979), p. 218.

1860 would put this annual burden for the U.S. at $154 million (1860 dollars).[60] Notice how close this is to our upper–bound estimate in Table 3.2, $190 million (1850 dollars), arrived at through an entirely different method for ten years earlier. (Prices only rose about 6 percent between 1850 and 1860, so adjusting for inflation would not alter the comparison much.) This fall in output can also give us a rough estimate of the total deadweight loss from slavery, including classical inefficiency, something we were unable even to approximate in Chapter 3. As Gallman has suggested, "[t]he relative level of Southern per capita income in 1880, by which date the South had perhaps recovered from the chief direct effects of the War, might be as good an index of the relative productive capacity of the ante–bellum South, absent the special compulsions of slavery, as can be obtained."[61] In other words, without slavery's overworking of slaves, the South was left with about 45 percent of the North's per capita income.[62] If we make the reasonable but ultimately unverifiable assumption that the region's output per capita would have matched the North's during the nineteenth century, in a world where slavery had never been introduced, then total deadweight loss in 1860

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[60]Total 1860 income for the South was derived from my revised estimate in Table 4.6 of $100 per capita times a southern population of 10.259 million. To keep this result consistent with the regional income figures of Easterlin and Engerman, I continue to use their truncated definition of the South, excluding Delaware, Maryland, the District of Columbia, and Missouri. Incorporating those areas would raise annual deadweight loss, as would using any of the estimates (all higher and ranging from 20 to 40 percent) of the drop in southern income per capita to 1870 (rather than to 1880), or starting out with Engerman's higher estimate of $103 for per capita southern income in 1860.

[61]Gallman, "Slavery and Southern Economic Growth," 1013.

[62]Easterlin did not report the income relative for the North overall (Table 7.1) but only for the Northeast (141) and the North Central (98). But those region's population shares were 31 and 35 percent respectively, which means the North's income relative in 1880 was 118. The South's relative as reported in Table 7.1 was 51, or 43 percent 118.

comes close to a staggering $842 million (1860 dollars), over 80 percent of the South's actual total income that year.[63]

This quantity, however, is biased upward. It ignores the extent to which the former slave states in 1880 had been made poorer by central government policies. The fact that they attained an output per person only 45 percent of that attained by the northern states resulted partly from factors other than the lingering burdens of slavery, a question to which we will now turn.

IV

The gain in black leisure does not fully account for low southern income after the Civil War. Prior to the publication of Ransom and Sutch's work, Gavin Wright had placed blame on the weakening of worldwide demand for U.S. cotton; "productive efficiency per se," he wrote, "may be less important for the study of southern income growth than the position of the South in the world economy."[64] Great Britain and other importers had shifted their cotton purchases to India, Brazil, and Egypt during the Confederate embargo and Union blockade, and the South did not recover its market share until the 1880s, at a time when world

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[63]If the South in 1860 had enjoyed the North's 1860 per capita income of $144 (my revised estimate, Table 4.6), total income would have been $1.477 billion. 43 percent of that is $635 million, and the difference is $842 million.

[64]Gavin Wright, "Cotton Competition and the Post Bellum Recovery of the American South," *Journal of Economic History*, 34 (Sep 1974), 635. This argument was earlier suggested in a panel discussion led by Alfred Conrad and John Meyer, "Slavery as an Obstacle to Economic Growth," *Journal of Economic History*, 27 (Dec 1967), 528–9. Wright also discusses the question in "Slavery and the Cotton Boom," *Explorations in Economic History*, 12 (Oct 1975), 439–51, and "The Efficiency of Slavery: Another Interpretation," *American Economic Review*, 69 (Mar 1979), 219–26.

consumption was growing at half the prewar rate. As Wright subsequently summarized:

> The rapid economic growth of the antebellum cotton economy was no more sustainable than the growth of British textiles production, and the heyday of that industry's expansion was over by 1860. . . . Indeed, in 1860 the textiles industry stood on the crest of a major crisis of overproduction, which would have ushered in this era of stagnation had it not been overshadowed by the Cotton Famine of 1860s [resulting from the Civil War].[65]

Peter Temin attempted to unify the separate factors identified by Ransom–Sutch and by Wright. Although Ransom and Sutch's decline in labor would have by itself reduced the output of cotton as well as other crops, cotton's price would have simultaneously risen—how much depending on the elasticity of demand. Wright found that during the 1860s that elasticity had increased from 1.0 to approximately 1.5. His fall in cotton demand therefore helped to reinforce the negative effect of the fall in labor supply. According to Temin, the two effects "deserve equal weight in an account of the decline in southern relative income after the Civil War." Without emancipation income would have been one–third higher, without changes in the world cotton market it would have been as much as one–fourth higher.[66]

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[65]Gavin Wright, *The Political Economy of the Cotton South: Households, Markets, and Wealth in the Nineteenth Century* (New York: W. W. Norton, 1978), pp. 95–6.

[66]Peter Temin, "The Post–Bellum Recovery of the South and the Cost of the Civil War," *Journal of Economic History*, 36 (Dec 1976), 904. Atack and Passell, *A New Economic View of American History*, pp. 384–5, revise one of Temin's computations.

The difficulty with this simple and elegant integration of the two factors is its utter reliance on elasticity estimates. Goldin and Lewis showed that if you change the assumption about an inelastic short–run supply of cotton, you dampen any income fall resulting from the behavior of cotton demand.[67] Far less reliable than Wright's (and Temin's) supply elasticity, however, are their demand elasticities. John R. Hanson II corrected some of Wright's calculations (corrections that Wright accepted), rendering a less dramatic slowing in the postwar demand for American cotton. Hanson also looked at the total world demand, which displayed still greater growth than demand for U.S. cotton alone from 1860 to 1870.[68] Yet to make these observations, Hanson had to assume constant elasticities over time.

The most recent study of the nineteenth–century cotton market, from David G. Surdam, "calls into question the assumption of constant elasticity of total demand that has been used for estimates of the growth in demand." Surdam demonstrates that the demand elasticity for American cotton not only changed

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[67]Claudia Goldin and Frank D. Lewis, "The Post–Bellum Recovery of the South and the Cost of War: Comment," *Journal of Economic History*, 88 (Jun 1978), 487–92; see also Peter Temin's "Reply to Goldin and Lewis," *ibid.*, 493. Gerald Friedman and Donghyu Yang also question Wright's assumptions about supply elasticities—at least for the antebellum period—in "The Debate on the Elasticity of Cotton Supply," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, no. 36. Robert W. Fogel and Stanley L. Engerman offered their own critique of Wright's emphasis on cotton demand in "Explaining the Relative Efficiency of Slave Agriculture in the Antebellum South: Reply," *American Economic Review*, 70 (Sep 1980), 689; reprinted and slightly expanded in Fogel and Engerman, eds., *Without Consent or Contract—Markets and Production: Technical Papers*, v. 1, pp. 294–5.

[68]John R. Hanson II, "World Demand for Cotton during the Nineteenth Century: Wright's Estimates Re–examined," *Journal of Economic History*, 4 (Dec 1979), 1015–1021; Gavin Wright, "World Demand for Cotton during the Nineteenth Century: Reply," *ibid.*, 1023–4; Donghyu Yang, "The Debate over the Growth in the Demand for Cotton," in Fogel, Galantine, and Manning, eds., *Without Consent or Contract—Evidence and Methods*, no. 37.

over time but was not even constant at any one time for different prices. (This is the same reservation we raised in the last chapter with regard to Claudia Goldin's work on slave demand.) That means "we cannot rule out the possibility that world demand for American–grown raw cotton *increased* slightly during the decade" of the 1860s, rather than decreased. Surdam has also shown that the British textile industry was very far from facing a crisis of overproduction at the beginning of the decade.[69]

All of this casts strong doubts on Wright's assertion that the demand for the South's cotton was destined for a severe downturn, even without the Civil War. What is more likely is that world demand steadily grew through the 1860s, but soaring prices resulting from the war's disruptions temporarily inhibited consumption and increased the market share of rival producers. Prior to the conflict American cotton had "accounted for 85 percent of total consumption . . . in the United States, Great Britain, and continental Europe."[70] Not until the 1870s did the United States recover its leading role in world cotton markets, albeit with a slightly reduced share, with higher elasticities of demand, and with slightly slower growth. The South's postwar income was adversely affected, but how much remains unclear. Irwin calculates the potential long–run impact at 7 percent

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[69]David G. Surdam, "King Cotton: Monarch or Pretender? The State of the Market for Raw Cotton on the Eve of the American Civil War," *Economic History Review*, 51 (Feb 1998), 117, 130. See also Surdam, "Cotton's Potential as Economic Weapon: An Examination of the Antebellum and Wartime Market for Cotton Textiles," *Agricultural History*, 68 (Spring 1994), 122–45.

[70]Surdam, "King Cotton," 122.

or less of the South's *agricultural* (not total) income.[71] And contrary to Wright, that adverse impact stemmed more from domestic than from international events.

Indeed, Hanson and Surdam's critical distinction between the total world demand for cotton and the demand for American cotton calls attention to something else that could have caused the two to diverge: tariffs. Although the Civil War brought about a fundamental alteration in U.S. trade policy, almost no scholar has considered the possible impact on the South; the only exception I have uncovered is James L. Sellers, who in a 1925 *American Historical Review* article suggested that Union finance may have shifted over $1 billion of the war's costs onto the former Confederacy.[72] Prior to the conflict tariffs had remained the sole source of national revenue, outside of land sales. Yet the secular trend had been for Congress to ease up on import duties, from the Nullification Crisis of 1833 on forward. The Tariff of 1857 brought them to a post–War of 1812 low, averaging less than 20 percent of the value of dutiable imports and 15 percent of the value of all imports.[73]

Then, even before Abraham Lincoln assumed office in 1861, the outgoing Congress raised duties with the Morrill Tariff. Republican legislatures subsequently took advantage of the southern departure to jack up rates higher and higher. A multitude of wartime internal taxes helped to justify steep tariffs, since

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[71]Irwin, "Explaining the Decline in Southern per Capita Output after Emancipation," 351–3.

[72]James L. Sellers, "An Interpretation of Civil War Finance," *American Historical Review*, 30 (Jan 1925), 282–97.

[73]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970*, pt. 2, series U207–212.

domestic industry would otherwise face unfair foreign competition. By the conflict's end, average duties had risen to 47 percent and the free list had been cut in half. Protectionism would continue to dominate American trade policy mercilessly for the next three quarters of a century. Despite a few scattered reductions, the McKinley Act of 1890 brought a new surge in duties, the Wilson–Gorman Tariff of 1894 mostly stood pat, and the Dingley Tariff of 1897 took protection to a new peak.[74] Although supplemented by all the new internal excises, most notably the sin taxes on alcohol and tobacco, tariffs would continue to provide the bulk of national revenue, usually in excess of 50 percent, from 1869 through the turn of the century.[75]

　　This revenue came out of the pockets not only of those Americans purchasing imports, who were of course distributed across both South and North. Tariffs also affected the income of U.S. exporters, because southern cotton and

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[74]The classic history of American trade duties remains Frank W. Taussig, *The Tariff History of the United States*, 8th edn. (New York: G. P. Putnam's Sons, 1931), whereas the older two volumes of Edward Stanwood, *Tariff Controversies in the Nineteenth Century* (Boston: Houghton, Mifflin, 1903), fill in the political background. Bray Hammond, *Sovereignty and an Empty Purse: Banks and Politics in the Civil War* (Princeton, NJ: Princeton University Press, 1970), also covers Civil War tariffs. Considering cliometrician's prodigious efforts on the economic effects of the antebellum duties, the neglect of postbellum duties is remarkable. Bennett D. Baack and Edward J. Ray have done a public–choice analysis in "The Political Economy of Tariff Policy: A Case Study of the United States," *Explorations in Economic History*, 20 (Jan 1983), 73–93, that substantially confirms the traditional view that post–Civil War tariffs were invariably at the behest of special interests. Otherwise, economic historians seem to have been mainly concerned with how effective was the protection provided by these tariffs; see for example G[uy]. R. Hawke, "The United States Tariff and Industrial Protection in the Late Nineteenth Century," *Economic History Review*, 2nd ser., 28 (Feb 1975), 84–99; Douglas A. Irwin, "Did the Late Nineteenth Century Tariffs Promote Infant Industries? Evidence from the Tinplate Industry," *Journal of Economic History*, 60 (Jun 2000) 335–60; and D. Irwin, "Could the United States Iron Industry Have Survived Free Trade after the Civil War?" *Explorations in Economic History*, 37 (Jul 2000), 278–99.

[75]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970*, pt. 2, series Y352–357.

other commodities became relatively more expensive in terms of the goods and services Europeans had to sell to get dollars. With higher import duties, the United States bought fewer foreign goods and consequently sold less to foreigners. The demand for cotton was therefore lower than otherwise. Although this simple accounting identity could have been offset if Europeans borrowed dollars to finance their appetite for cotton, the United States consistently imported capital after the Civil War. The only other way this dampening effect could have been avoided is if the world demand for American cotton was so intense (inelastic) that the tariff induced Europeans to increase their exports to the United States with prices so low that they compensated for the tariff's bite. But we know for a fact that was not the case because of what happened during the Civil War, when Europeans quickly and easily switched from American cotton to other suppliers or simply did without.

Mark Aldrich is one economic historian who has noted that American cotton was more expensive in terms of foreign currency during the postwar period, but he futilely tries to pin responsibility on the floating exchange rates that prevailed while the U.S. was off the gold standard between 1861 and 1879, and he somehow completely ignores tariffs.[76] The national government admittedly imposed some nominal duties on agricultural products, mainly for revenue purposes. Most of these were ineffectual, since the country usually exported such commodities. Two import taxes that did marginally help the South were those on sugar and rice. When Congress temporarily repealed the sugar duty in 1890,

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[76]Mark Aldrich, "Flexible Exchange Rates, Northern Expansion, and the Market for Southern Cotton: 1866–1879," *Journal of Economic History*, 33 (Jun 1973), 399–416.

eliminating a lucrative source of revenue, it replaced the duty with a monetary bounty for sugar growers. Four years later the national legislature reinstated the duty and abolished the bounty.[77] But these subsidized crops were confined mainly to Louisiana and never amounted to much more than 1 percent of the value of agricultural output within the postwar South, whereas cotton's share was close to 25 percent.[78] Thus, the net impact of post–Civil War tariffs on the southern states was overwhelmingly negative.

A portion of the South's lost income represented revenue gains to the United States government, as the tariff drove a wedge that simultaneously raised the relative domestic prices of U.S. imports and lowered the relative domestic prices of U.S. exports. So it behooves us to examine where that revenue was going. One place was to holders of U.S. Treasury securities. The Civil War had seen the national debt soar from a modest $65 million—*less* than annual expenditures in 1858—to a staggering $2.8 billion. Interest alone commanded about 40 percent of the central government's outlays into the mid–1870s. And

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[77]Taussig, *The Tariff History of the United States*, pp. 275–8, 304–16.

[78]Gallman "Gross National Production of the United States, 1834–1904," places average annual nominal GNP at $9.54 billion between 1874 and 1883. Easterlin in "Regional Income Trends, 1840–1950" estimates the South's 1879 share of that at 15 percent and in "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950" estimates that 76 percent of the South's 1879 income originated in agriculture, for approximately $1.07 billion (current prices). Gallman, "Commodity Output, 1839–1899," gives 1879 income from cotton cultivation as $269 million and from rice and sugar cultivation at $12 million (current prices). The resulting percentages are for Easterlin's definition of the South. They would be smaller if Delaware, Maryland, and Missouri were included and, of course, be larger for just the Cotton South.

from the war's end to the depression of 1893, an unbroken string of twenty–eight annual budget surpluses reduced this debt below $1 billion.[79]

Jeffrey Williamson and John A. James have suggested that by taxing consumption to pay back the war debt, the tariff stimulated American saving and thereby accelerated capital accumulation.[80] Even if correct, their analysis should show a bit more sensitivity to exactly whose consumption was curtailed. For while Southerners, including freedmen, were bearing a disproportionate share of the tariff's burden, the recipients of these payments were initially Northerners and tended to remain so. Recall from Chapter 4 that Ransom and Sutch have argued that the South's peculiar institution absorbed saving. I remain dubious, but we now see that any post–abolition increases in saving would have been in part *forced* saving, extracted from the defeated South.

Once interest on the debt ceased to be the largest federal outlay, it was replaced by another war–related expenditure: veterans benefits. The Grand Army of the Republic, a pressure group composed of Union veterans, became a powerful bulwark of the Republican Party. Every Republican elected president from Ulysses S. Grant through William McKinley had served as a Civil War officer. Pensions grew from 2 percent of all federal spending in 1866 to 29

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[79]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970*, pt. 2, series Y335–338, Y457–465. The standard work on Treasury borrowing remains Robert T. Patterson, *Federal Debt–Management Policies, 1865–1879* (Durham: Duke University Press, 1954).

[80]Jeffrey Williamson, "Watersheds and Turning Points: Conjectures on the Long Term Impact of Civil War Financing," *Journal of Economic History*, 34 (Sep 1974), 631–61; John A. James, "Public Debt Management Policy and Nineteenth–Century American Growth," *Explorations in Economic History*, 21 (Apr 1984), 192–217.

percent in 1884, the year they replaced interest payments as the largest single item. These benefits were scandalously lavish, constituting in essence the national government's first system of old–age and disability insurance.[81] And no Confederate veteran ever received a penny. In short, throughout the second half of the nineteenth century, the United States government's primary fiscal activities exploited the war–ravaged, impoverished South and transferred wealth North.

Fortunately the central government was relatively small, at least by modern standards. Until the twentieth century, national expenditures remained in the neighborhood of 2.5 to 4.0 percent of U.S. output.[82] Yet this was often twice their prewar level, plus the region bearing the heaviest burden accounted for only 15 percent of the total economy.[83] If we assume that only one–fourth of the

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[81]William Henry Glasson, *Federal Military Pensions in the United States* (New York: Oxford University Press, 1918), is a general history of veterans' benefits up to World War I. Books that delve into the Grand Army of the Republic and its political clout include Mary R. Dearing, *Veterans in Politics: The Story of the G.A.R.* (Baton Rouge: Louisiana University Press, 1952); Wallace Evan Davies, *Patriotism on Parade: The Story of Veterans' and Hereditary Organizations in America, 1783–1900* (Cambridge, MA: Harvard University Press, 1955); and Stuart McConnell, *Glorious Contentment: The Grand Army of the Republic, 1865–1900* (Chapel Hill: University of North Carolina Press, 1992). Theda Skocpol, *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States* (Cambridge, MA: Harvard University Press, 1992), sees Civil War pensions as the foundation for the modern welfare state.

[82]U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970*, pt. 2, series Y457–465, for government finances. *Ibid.*, pt. 1, series F1–5 for national output after 1888. Estimates of national output for earlier dates include U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1957* (Washington: Government Printing Office, 1960), p. 139 [these are the estimates of Simon Kuznets as modified by John Kendrick]; Gallman, "Gross National Product in the United States, 1834–1904," p. 26; Roger L. Ransom, *Conflict and Compromise: The Political Economy of Slavery, Emancipation, and the American Civil War* (Cambridge: Cambridge University Press, 1989), p. 256. My results conform with the prior work of M. Slade Kendrick, *A Century and a Half of Federal Expenditures* (New York: National Bureau of Economic Research, 1955), pp. 10–11. Bear in mind that since this was an era of large surpluses, federal revenues could be a better measure of the burden and were a slightly higher percentage of output.

[83]The highest annual outlays reached prior to the Civil War was $74.2 million in 1858; U.S. Department of Commerce, *Historical Statistics of the United States: Colonial Times to 1970*, pt. 2,

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federal budget represented transfers from the South to the North, then *total*

southern income (not just agricultural) was reduced by around 5 percent.[84] Nor do

the monetary transfers capture the entire burden. Tariffs, like all taxes, have some

deadweight loss. Determining the exact amount is a complicated computation

depending on an array of elasticities and tax rates. But there is no doubt that the

total cost to the South exceeded the wealth expropriated. The national government

thereby hindered international demand for American cotton and lowered southern

monetary income beyond any decline brought by the withdrawal of black labor.

Ironically, the precise kind of colonial dependency that southern politicians had so

vociferously complained about before the Civil War was only realized

afterwards—with a vengeance.

<p style="text-align:center">V</p>

This brings us to another of Ransom and Sutch's contentions: the

purported inefficiency of sharecropping. Sharing the crop at first glance seems

inferior to renting land outright. The renter gets to keep all extra agricultural

output, whereas the sharecropper keeps only half (or whatever his predetermined

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Series Y335–8, Y457–65. This was less than 2 percent of the economy's total output. Gallman, "Gross National Product in the United States, 1834–1904," p. 26, puts GNP at $4.17 billion in 1859. Thomas Senior Berry, *Production and Population Since 1789: Revised GNP Series in Constant Dollars* (Richmond: Bostwick Press, 1988), estimates nominal output at $3.7 billion in 1858 and $3.9 billion in 1859, whereas Thomas Weiss, "Estimates of Gross Domestic Output for the United States" (Working paper, University of Kansas, 1992), places the latter figure at $4.2 billion. Ransom and Sutch conjecture, appearing in Ransom, *Conflict and Compromise*, p. 256, is $4.1 billion for 1859. See also Kendrick, *A Century and a Half of Federal Expenditures*, p. 10. A comparison of the various pre–Civil War estimates of national output is Charles J. Myers, "A Compilation of Estimates of U.S. GNP, 1790–1840" (Unpublished paper, Golden Gate University, 1992), which is an early spin off from his "Retirement of the First Federal Debt: A Test of Vincent Ostrom's Theory of Democratic Administration" (Ph.D. diss., Golden Gate University, 1994). The South's 15 percent share of postwar national income is from Easterlin, "Regional Income Trends, 1840–1950."

[84]One fourth of 3.0 percent divided by 15 percent equals 5 percent.

<p style="text-align:center">346</p>

share), thereby reducing his incentive to produce more. Sharecropping also weakens the incentive of either the owner or the cropper to invest in machinery, land improvements, and other capital that would increase productivity. A good deal of farm land was, in fact, rented in the post–Civil War South, by both blacks and whites. But renting entails greater risk, especially if there is a bad harvest. A farmer's rent remains unchanged, even if his crops will not sell for enough to pay it. Sharecropping pools the risk between the owner and farmer. Moreover, it often gives the farmer access to the owner's tools and knowledge.

Economists' purely theoretical writings on the subject are well developed and highly technical.[85] Among those attempting to apply the insights of this literature to postbellum agriculture, Joseph D. Reid, Jr., has touted sharecropping's overall reduction of risk.[86] Robert Higgs has similarly identified risk as a major stimulus to sharecropping,[87] and along with Lee J. Alston and Ralph Shlomowitz, he also has emphasized the institution's ability to motivate farm workers when labor markets are thin. Notice how this latter theme parallels and anticipates Christopher Hane's analysis of slavery discussed back in Chapter

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[85]I will therefore mention only Steven N. S. Cheung's minor classic, *The Theory of Share Tenancy: With Special Application to Asian Agriculture and the First Phase of Taiwan Land Reform* (Chicago: University of Chicago Press, 1969) and D. Gale Johnson, "Resource Allocation Under Share Contracts," *Journal of Political Economy*, 58 (Apr 1950), 111–23.

[86]Reid, "Sharecropping as an Understandable Market Response: The Postbellum South"; Joseph D. Reid, Jr., "Sharecropping in History and Theory," *Agricultural History*, 49 (Apr 1975), 426–40; Reid, "Antebellum Southern Rental Contracts," *Explorations in Economic History*, 13 (Jan 1976), 69–83; and Reid, "Sharecropping and Agricultural Uncertainty," *Economic Development and Cultural Change*, 24 (Apr 1976), 549–76.

[87]Robert Higgs, "Race, Tenure and Resource Allocation in Southern Agriculture, 1910," *Journal of Economic History*, 33 (May 1973), 149–69, and Higgs, *Competition and Coercion: Blacks in the American Economy, 1865–1914* (Cambridge, UK: Cambridge University Press, 1977), pp. 67–8.

5.[88] Nancy Virts on the other hand has hinted at how sharecropping and other tenant relationships might perpetuate the managerial economies of large plantations.[89] Stephen J. DeCanio has employed county data from the published censuses of 1880, 1890, 1900, and 1910 to estimate Cobb–Douglas production functions, which yielded no discernible productivity differentials between sharecropping and other farming arrangements.[90] All these authors find southern agriculture after the Civil War to be far more varied, flexible, and adaptable to changing circumstances than do Ransom and Sutch.

Despite differing rationales for the institution's emergence, the neo–classical defenders of sharecropping all raise one inevitable question. If sharecropping was inefficient, why could more productive arrangements not compete effectively? The innovative answer offered in *One Kind of Freedom* was that malfunctioning credit institutions bestowed local monopolies on country merchants. The postwar South lacked adequate financial markets. Croppers and renters relied upon credit from the country store. Local merchants sold food, clothing, and agricultural supplies either for cash or on time, with crops pledged as security. Markups for the store's commodity credit were between 30 and 70

[88]Robert Higgs, "Patterns of Farm Rental in the Georgia Cotton Belt," *Journal of Economic History*, 34 (Jun 1974), 468–82; Alston and Higgs, "Contractual Mix in Southern Agriculture Since the Civil War"; Shlomowitz, "The Origins of Southern Sharecropping"; Shlomowitz, "Plantations and Smallholdings: Comparative Perspectives from the World Cotton and Sugar Cane Economies, 1865–1939"; Shlomowitz, "'Bound' or 'Free'? Black Labor in Cotton and Sugar Cane Farming, 1865–1880."

[89]Nancy Virts, "Estimating the Importance of the Plantation System to Southern Agricultural," *Journal of Economic History*, 47 (Dec 1987), 984–8.

[90]DeCanio, *Agriculture in the Postbellum South*.

percent annually, whereas in cities only 50 to 100 miles away rates of interest were one–fifth that. The combination of exorbitant interest and crop–liens kept some tenant farmers perpetually in debt.

The charge that these country merchants made sharecroppers grow an irrational mix of crops—too much cotton and too little corn or other food—is no doubt the weakest link in *One Kind of Freedom*.[91] To find another scholarly argument that has been as unanimously rejected and thoroughly discredited among economic historians would be difficult. What appears to have been Ransom and Sutch's original formulation, that this cotton overproduction somehow lowered the monetary income of individual farms, was refuted—not only in the contributions of Reid, Claudia Goldin, and Peter Temin reprinted in the Walton and Shepherd collection,[92] but also in other journal articles by DeCanio and by William W. Brown and Morgan O. Reynolds.[93] Ransom and Sutch simply had not provided a logically sensible or historically plausible mechanism by which merchants could have raised their own incomes by requiring farm debtors to grow an unprofitable crop mix.

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[91]Although achieving its fullest form in *One Kind of Freedom*, pp. 149–70, Ransom and Sutch had presented the argument earlier in "Debt Peonage in the Cotton South After the Civil War" and "The 'Lock–in' Mechanism and Overproduction of Cotton in the Postbellum South."

[92]Goldin, "'*N*' Kinds of Freedom: An Introduction to the Issues"; Joseph D. Reid, Jr., "White Land, Black Labor, and Agricultural Stagnation: The Causes and Effects of Sharecropping in the Postbellum South," *Explorations in Economic History*, 16 (Jan 1979), 31–55; and Peter Temin, "Freedom and Coercion: Notes on the Analysis of Debt Peonage in *One Kind of Freedom*," *ibid.*, 56–63; all reprinted in Walton and Shepherd, eds, *Market Institutions and Economic Progress in the New South 1865–1900*.

[93]Stephen J. DeCanio, "Cotton 'Overproduction' in Late Nineteenth–Century Southern Agriculture," *Journal of Economic History*, 33 (Sep 1973), 608–33, and William W. Brown and Morgan O. Reynolds, "Debt Peonage Re–examined," *ibid.*, 33 (Dec 1973), 862–71.

The author's of *One Kind of Freedom* were compelled to fall back, with some hemming and hawing, on a more defensible formulation of the cotton–overproduction thesis, best articulated by Gavin Wright and Howard Kunreuther.[94] The Wright–Kunreuther version has two independent contentions: (1) Sharecroppers and other small farmers would have preferred to forgo some expected monetary income in order to attain self–sufficiency in food, but their creditors forced them to produce the most profitable mix for the market. (2) Because the worldwide demand for southern cotton was by 1880 again near unit elastic, a reduction in total output would have driven up prices enough to compensate farmers. Cotton restrictions would have worked similar to the oil restrictions of the OPEC cartel. Therefore, by sheer coincidence, if those farmers who had wanted to grow more corn and less cotton had gotten their way, their *collective* incomes might have risen, although each *individual* farmer could still expect to profit monetarily by shifting from corn to cotton.[95]

This version of the cotton–overproduction thesis employs the same safety–first mentality that Wright had postulated as prevalent among southern farmers during the antebellum era. In addition to the reservations we brought up

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[94]Roger Ransom and Richard Sutch, "Credit Merchandising in the Post–Emancipation South: Structure, Conduct, and Performances," *Explorations in Economic History*, 16 (Jan 1979), 65–89, reprinted in Walton and Shepherd, eds., *Market Institutions and Economic Progress in the New South 1865–1900*.

[95]Wright and Kunreuther, "Cotton, Corn and Risk in the Nineteenth Century." See also Gavin Wright, "Freedom and the Southern Economy," *Explorations in Economic History*, 16 (Jun 1979), 90–108, reprinted in Walton and Shepherd, eds., *Market Institutions and Economic Progress in the New South 1865–1900*. We should note that the Wright–Kunreuther thesis, if perchance correct, implies that all the state–sponsored railroad subsidies during Republican Reconstruction also helped impoverish the South. If the region was producing too much cotton to begin with, poor farmers certainly did not need to be taxed to build railroads to bring that cotton to market.

in Chapter 5, Robert McGuire and Higgs have raised other theoretical and historical challenges.[96] They note that, although the South indeed lost its self sufficiency in food after the Civil War, the ratio of cotton to corn had not risen all that drastically or any more rapidly than before the war. DeCanio's statistical analysis suggested that southern cotton farmers were as responsive to relative crop prices in their planting decisions as were midwestern wheat farmers.[97] And Temin showed that increases of cotton output were not general throughout the South but concentrated within particular sections.[98] Thus, expanding transportation networks coupled with simple profit incentives are equally capable of explaining the crop mix whether we are looking at the postwar or the prewar South. Susan Previant Lee and Peter Passell in an early survey of this debate commented "that the burden of proof must rest on those who argue that the South's postwar movement toward crop specialization needs some explanation other than classical 'comparative advantage'."[99]

As for the merchants' role, Goldin and Reid have made two of the most telling demonstrations that the high differential between rural and urban interest

[96]Robert McGuire and Robert Higgs, "Cotton, Corn, and Risk in the Nineteenth Century: Another View," *Explorations in Economic History*, 14 (Apr 1977), 167–82. See also Gavin Wright and Howard Kunreuther's rejoinder, "Cotton, Corn, and Risk in the Nineteenth Century: A Reply," *ibid.*, 183–95.

[97]DeCanio, "Cotton 'Overproduction' in Late Nineteenth–Century Southern Agriculture," and DeCanio, *Agriculture in the Postbellum South*, pp. 111–8, 241–61.

[98]Peter Temin, "Patterns of Cotton Agriculture in Post–Bellum Georgia," *Journal of Economic History*, 43 (Sep 1983), 651–74.

[99]Susan Previant Lee and Peter Passell, *A New Economic of American History*, 1st ed. (New York: W. W. Norton, 1979), p. 257. They also add, however, that "it is difficult to explain . . . why it was small renters and tenant farmers rather than medium–size owner–operators who so abruptly abandoned self–sufficiency."

rates reflected default risk and transaction costs rather than territorial monopolies.[100] Ransom and Sutch understated urban lending rates because they overlooked the fees and other expedients used to get around state usury laws. Any remaining interest–rate disparity did not make the South's eight thousand or so country storekeepers beneficiaries of monopoly power. Few had a net worth over $10,000, and bankruptcy among them was endemic.[101] During the 1880s probably less than 20 percent of all supplies consumed were purchased and credit, and Price V. Fishback presents some empirical evidence that contradicts the common perception of perpetually indebted sharecroppers.[102] Nonetheless, a well developed financial system might have lifted southern agriculture out of sharecropping. Poor farmers could have borrowed capital instead of depending upon landowners, or gone into debt to buy their own land. Although country stores were not guilty of exercising monopoly power, we still would like to know exactly what other factors permitted rural loans to command higher rates.

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[100]Goldin, "'*N*' Kinds of Freedom: An Introduction to the Issues," and Reid, "White Land, Black Labor, and Agricultural Stagnation: The Causes and Effects of Sharecropping in the Postbellum South."

[101]Thomas D. Clark, *Pills, Petticoats and Plows: The Southern Country Store* (Indianapolis: Bobbs–Merrill, 1944), is a traditional and well–balanced history of this business. A broader survey of cotton marketing, going back to antebellum years, is Harold D. Woodman, *King Cotton and His Retainers: Financing and Marketing the Cotton Crop of the South, 1800–1925* (Lexington: University of Kentucky Press, 1968). Woodman's claim that southern agriculture was always starved for capital, however, should be contrasted with the findings of Larry Schweikart, *Banking in the American South: From the Age of Jackson to Reconstruction* (Baton Rouge: Louisiana State University Press, 1987), about the South's high degree of financial sophistication before the Civil War's dislocations.

[102]Price V. Fishback, "Debt Peonage in Postbellum Georgia," *Explorations in Economic History*, 26 (Apr 1989), 219–36.

Economist Gerald David Jaynes, in *Branches Without Roots: Genesis of the Black Working Class in the American South, 1862–1882*, has given one solution. He agrees that sharecropping prevailed because of inadequate credit and money. Although unduly contentious (probably to over–differentiate his product) and often obscure (from futilely striving to square neoclassical theory with Marxist conclusions), Jaynes's book is rich in both useful data and fresh perspectives. Only one small part of his evidence involves a sample of 98 cotton farms drawn from the 1880 census manuscripts. He constructed geometric indexes of total factor productivity for *each* separate farm, and then ran regressions on the results. Contra Fogel and Engerman, Jaynes found no scale economies in cotton farming. But he did conclude that if the South's agricultural sector could have paid regular, monetary wages, productivity might have risen 35 percent.[103] Yet planters were generally unable to do so because of South's undeveloped credit market.

Jaynes attributes this financial predicament to emancipation. Laborers who cannot be enslaved also could not deploy their future income to guarantee loans. "[F]ree laborers cannot sell or, what is essentially the same, offer their bodies as collateral upon the same terms as those on which a master can negotiate a slave."[104] This is what he believes primarily explains the postwar decline of southern income. Jaynes accepts Ransom and Sutch's finding about the withdrawal of black labor. But rather than resulting from a fall in supply caused

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[103]Jaynes, *Branches Without Roots,* pp. 242–4, 326–41.

[104]*Ibid.*, p. 34.

by a desire for more leisure, it resulted from a fall in demand caused by the financial constraints on planters. They could not borrow the money necessary to pay periodic wages, and therefore fell back upon less productive share contracts. By lowering labor's marginal product, sharecropping reduced the opportunity cost—for black women particularly—of shifting labor into household production.[105]

Jaynes's intriguing thesis might resolve the observed downward drift of southern agricultural wages after the war. It fortunately has enough additional support not to hinge entirely on Jaynes's productivity calculations. Although they appear to contradict the results of DeCanio, based on more extensive although more aggregated samples, DeCanio never tested directly for differences between, on the one hand, all cropping and rental arrangements that paid a share of the crop versus those that could pay cash wages. Nevertheless, the eventual re–establishment of Louisiana sugar plantations using wage labor suggests that any 35 percent productivity advantage was unlikely to persist, regardless of transaction costs.

The planters' loss of their ability to borrow against human capital undoubtedly had some impact on southern credit markets. But its precise magnitude is obscured by another element to which Jaynes's book inadvertently

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[105]Others who previously suggested that the decline in the black labor input might have resulted as much from demand as from supply factors include Ralph V. Anderson and Gallman, "Slaves as Fixed Capital: Slave Labor and Southern Economic Development," *American Historical Review*, 64 (Jun 1977), 41–2; and Wright, in "Freedom and the Southern Economy," 89–90, and in *Old South, New South*, pp. 36–8. In terms of Figure 3.1, this implies that the demand curve shifted inward along a downward sloping supply curve of labor rather than the supply curve shifting inward.

points. Economists have learned that price differentials of the kind that separated

urban and rural lending in the postwar South, if not explained by real factors,

often result from government–imposed barriers. In this case, the villain was the

new National Banking System. Its creation stifled recovery of the South's credit

markets from wartime dislocation.[106]

The Republican Congress had drafted the National Currency Acts of 1863

and 1864 to help finance the war debt. These acts fashioned a network of

nationally chartered banks, which were required to hold specified quantities of

Treasury securities. In exchange, these associations could issue national bank

notes supplied to them by the new federal Comptroller of the Currency.

State–chartered banks were still allowed to provide other financial services. But

when a 2 percent tax on state bank notes (compared with half that on national

bank notes) failed to drive those notes out of circulation, Congress hiked the tax

to a prohibitive 10 percent in 1865, making sure that nationally chartered banks

enjoyed a currency monopoly. In short, the national banks became privileged

intermediaries whereby the war debt was converted into a government–managed

circulating medium.[107]

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[106]Ransom and Sutch, *One Kind of Freedom*, pp. 110–3, allude to the role of the National Currency Acts in creating transaction costs and thereby stifling investment in the rural South, as do several articles: William J. Laird and James R. Rinehart, "Deflation, Agriculture, and Southern Development," *Agriculture History*, 42 (Apr 1968), 115–245; and John A. James, "Financial Underdevelopment in the Postbellum South," *Journal of Interdisciplinary History*, 11 (Winter 1981), 443–454. But no new economic historian has given the National Banking System's role the systematic exploration it warrants.

[107](25 Feb 1863) 12 *U.S. Statutes at Large* 665–72; (3 Jun 1864) 13 *ibid.* 99–118. On passage of this legislation, see Andrew McFarland Davis, *The Origin of the National Banking System* (Washington: Government Printing Office, 1910); Hammond, *Sovereignty and an Empty Purse*; and David M. Gishce, "The New York City Banks and the Development of the National Banking System, 1860–1870," *American Journal of Legal History*, 23 (Jan 1979), 21–67. A contemporary

These financial expedients included many features that interdicted the flow of savings to agriculture. Nationally chartered banks could not legally make real–estate loans at all until 1913. The general prohibition on branch banking made it more difficult to reallocate credit out of areas where interest rates were low to where the demand was greatest. High capital requirements for bank charters, the Comptroller of the Currency's restriction of entry, and initial ceilings on bank notes also all discriminated against the rural South. After the ceilings were removed, the requirement that national bank notes be matched by investments in an ever shrinking supply of Treasury securities first diverted savings and then made it less profitable to issue these notes where interest rates were highest.[108] State usury laws posed a similar obstacle, and the primary way of

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attack on the acts is Simon Newcomb, *A Critical Examination of Our Financial Policy during the Southern Rebellion* (New York: D. Appleton, 1865). Although the Civil War legislation that created this system are invariably mistitled in historical accounts, their name at the time of passage was National *Currency* Acts. The government did not officially adopt the label of National *Banking* System until 1874.

[108]The premier treatise on money and banking after the Civil War comes from the National Bureau of Economic Research: Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867–1960* (Princeton: Princeton University Press, 1963). An outstanding analysis of the National Banking System is John A. James, *Money and Capital Markets in Postbellum America* (Princeton, NJ: Princeton University Press, 1978). James contends that its pernicious effects receded as most of the legal restrictions were successfully evaded. Phillip Cagan, "The First Fifty Years of the National Banking System—An Historical Appraisal," in Deane Carson, ed., *Banking and Monetary Studies* (Homewood, IL: Richard D. Irwin, 1963), is a succinct statement of the conventional case in favor of the National Banking System, whereas Richard E. Sylla, "The United States 1863–1913," in Rondo Cameron, ed., *Banking and Economic Development: Some Lessons of History* (New York: Oxford University Press, 1972), was an influential reevaluation. A recent exploration of how regulations perversely inhibited the circulation of bank notes is Bruce W. Hetherington, "Bank Entry and the Low Issue of National Bank Notes: A Re–examination," *Journal of Economic History*, 50 (Sep 1990), 669–675. For a more favorable view of national banking's impact on the *urban* South, based on a look at Knoxville, Tennessee, consult James T. Campen and Anne Mayhew, "The National Banking System and Southern Economic Growth: Evidence from One Southern City, 1870–1900," *ibid.*, 48 (Mar 1988), 127–37.

evading these laws, compensating deposit balances, were unlikely to be offered to impoverished agricultural borrowers.[109]

State–chartered banks, which might have filled the gap, could no longer issue notes. They could offer deposits and, for that reason, experienced a resurgence by the turn of the century, but modern readers often fail to appreciate how the widespread use of the checking account—a liability of private institutions that forms the bulk of today's money supply—depends upon advanced technologies of credit verification. Some will remember a time when few merchants would accept checks in payment. During the nineteenth century, the privilege of writing an open–ended draft against a bank was confined to individuals of recognized wealth or unquestioned probity. The poor or undistinguished had to borrow currency, commodities, or nothing at all.

The National Banking System contributed to starving the agricultural South not only for credit but also for cash in small denominations. So long as the price level can freely adjust up and down, there can never be a shortage of money *per se*; but a denominational shortage can seem like one. The United States had long suffered this problem, because the official prewar mint ratio between gold and silver had driven silver, suitable for small transactions, out of circulation, while states often outlawed small bank notes. Although the Coinage Act of 1853

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[109]The possible role of state banking laws in crippling southern finance is neglected, but the laws themselves are briefly reviewed in Davis R. Dewey, "Banking in the South," from v. 6 of *The South in the Building of the Nation . . .* (Richmond: Southern Historical Publication Society, 1909). One monetary historian who believes these laws may have contributed to the dearth of nationally chartered banks in the South is Richard H. Timberlake, Jr., *Monetary Policy in the United States: An Intellectual and Institutional History* (Chicago: University of Chicago Press, 1993), p. 434, n. 32.

had tried to alleviate the deficiency by authorizing subsidiary silver coins, even these tokens were melted down for their metallic content during the wartime inflation. By 1869, their circulation had dwindled to nearly one–fourth their prewar level of $21 million.[110]

Despite new, war–engendered bans on private mints, which had previously manufactured copper coins, and on the paper currency of state banks, many businesses and municipalities began issuing their own notes, tickets, and due bills that circulated as small change, whereas the government facilitated such use for postage stamps. The Comptroller of the Currency complained in 1872 that "savings–banks, railroad, municipal, and other corporations in the States of Florida, Georgia and other southern States have followed the example of the State of Alabama, and have issued" large amounts of currency, "some in the form of receipts and certificates, and others in the form of railroad tickets, but all . . . intended to circulate as money."[111] Yet the privately and locally issued

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[110]Unfortunately, despite the great attention nineteenth–century Americans paid to the lack of cash in small denominations, monetary economists have mostly dismissed the problem. Richard H. Timberlake, Jr., is one of the few to take it seriously—in a 1974 *Journal of Economic History* article that was incorporated as chapter 9 in his *The Origins of Central Banking in the United States* (Cambridge, MA: Harvard University Press, 1978), further revised as *Monetary Policy in the United States*. The most advanced theoretical consideration of denominational problems that I have been able to locate is in Sui–ki Leung's unpublished paper, "Money Scarcity and the Cause of the American Free Banking Movement" (University of South Carolina, Department of Economics, December 1991). Both Timberlake and Leung offer an explanation for the secular behavior of money's velocity that is more satisfactory than the standard one of Friedman and Schwartz. As denominational shortages became less severe the velocity of the measured money stock declined, because this increased money's utility and therefore its demand relative to output. According to Gary M. Pecquet, "The Change Shortage and Private and Public Provision of Small Currency Denominations in the Trans–Mississippi States, 1861–1865," *Southern Studies*, 25 (Spring 1986), 102–10, this problem also plagued the Confederacy until severe inflation reduced the currency's real value.

[111]"Report of the Comptroller of the Currency, 1872," 42nd Cong., 3rd sess. (1872–73), *House Executive Documents*, v. 5, n. 3, p. xxxiii.

"shinplasters," as they were called, could not completely ease the shortage so long as they remained technically illegal, and the notes of nationally chartered banks were artificially scarce in rural regions, as already observed. Although the government's paper money was printed in fractional denominations even lower than the $1 limit set for national bank notes, the Treasury initially contracted its total circulation during Reconstruction.[112]

The National Banking System's restrictions on privately issued currency and domestic capital flows impinged on northern as well as southern farmers. More national bank notes circulated in postwar Connecticut than in Michigan, Wisconsin, Iowa, Minnesota, Kansas, Missouri, Kentucky, and Tennessee combined. One indication of this financial inefficiency was the appearance of major differentials among regional interest rates, something that had not existed under free banking prior to the war. The discount rate on commercial paper in the 1890s ranged from less than 4 percent in Boston to 10 percent in Denver, fueling misguided political crusades for inflationary policies, either through printing Greenbacks or coining silver.[113]

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[112]Historical details about small denomination issues, public and private, are in Neil Carothers, *Fractional Money: A History of the Small Coins and Fractional Paper Currency of the United States* (New York: John Wiley & Sons, 1930).

[113]Lance E. Davis wrote the original study of regional differences among interest rates during this era: "The Investment Market, 1870–1914: The Evolution of a National Market," *Journal of Economic History*, 25 (Sep 1965), 355–93. Richard Sylla, "Federal Policy, Banking Market Structure and Capital Mobilization in the United States, 1863–1913," *ibid.*, 29 (Dec 1969), 657–86, placed responsibility squarely on the National Banking System. More recently, Howard Bodenhorn and Hugh Rockoff, "Regional Interest Rates in Antebellum America," from Claudia Goldin and Hugh Rockoff, eds., *Strategic Factors in Nineteenth Century American Economic History: A Volume to Honor Robert W. Fogel* (Chicago: University of Chicago Press, 1992), have fortified the case against Republican finance by verifying the absence of such differentials before the war. Alternative explanations for these interest rate differentials, not all mutually exclusive, are found in Gene Smiley, "Interest Rate Movement in the United States, 1888–1913," *Journal of*

This government–induced derangement inhibited the South's monetary system just at the moment when its needs had leapt upward. The slave plantation was a mini–planned economy, within which food, clothing, and other resources, were allocated through the planter's central direction. Upon emancipation, most blacks entered the market for the first time. Now they had to purchase their own necessities. One Alabama merchant was jubilant over this "impetus to trade that we never had before."[114] But the denominational shortage often reduced freed slaves to an inefficient reliance upon barter. Sharecropping, after all, was a barter transaction—cotton exchanged for the use of land—and many of the farmers who rented land at fixed rates paid not "cash rent" in the form of money but "standing rent" in the form of crops. Even agricultural laborers often received non–monetary "share wages." Indeed, the inability of planters to pay regular wages in cash had been one reason for the freedmen's refusal to work in agricultural gangs. In short, the National Banking System throttled both financial intermediation and monetary exchange in the postwar agricultural sector.

VI

In the final analysis, the withdrawal of black labor after emancipation remains the primary negative shock to southern income. All other factors play bit parts and supporting roles. Ralph Shlomowitz offers an excellent summary of the

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Economic History, 35 (Sep 1975), 591–620; Jeffrey G. Williamson, *Late Nineteenth Century American Development: A General Equilibrium History* (London: Cambridge University Press, 1974); Hugh Rockoff, "Regional Interest Rates and Bank Failures," *Explorations in Economic History*, 14 (Winter 1977), 90–5; Marie Elizabeth Sushka and Brian W. Barrett, "Banking Structure and the National Capital Market, 1869–1914," *Journal of Economic History*, 44 (Jun 1984), 463–77; and John J. Binder and David T. Brown, "Bank Rates of Return and Entry Restrictions, 1869–1914," *ibid.*, 51 (Mar 1991), 47–66.

[114]As quoted in Jaynes, *Branches Without Roots*, p. 43.

peculiar institution's output inefficiency and the benefits that therefore flowed from abolition:

> . . . the essential and special feature of the slave system of labor organization is that the slaveowner can push the slave off the hypothetical lifetime voluntary supply of labor curve of the slave. This can be achieved by making the slave have a higher labor participation rate (particularly for the young, for married women, and for the aged) than free workers would voluntarily choose; by making the slave work longer hours and/or more intensely per hour than free workers would voluntarily choose; and by making the slave work under harsher and less preferred conditions than free individuals would voluntarily choose at a given wage rate. . . .
>
> The immediate economic effects of the emancipation of the slaves which had a bearing on the organization of labor in agriculture were . . . [that] the planter had to recognize that he could only operate on the voluntary lifetime supply of labor curve of the freedmen and accordingly, a whole host of nonpecuniary considerations, such as the freedmen's attitudes towards cooperative work, control, risk, and so on, had to be take into account in the employment package.[115]

After this one–time drop in physical output, the South resumed sustained economic growth. But the economic fortunes of ex–slaves were bound within a region that remained the country's poorest. Part of this relative poverty was a lingering legacy of slavery's deadweight loss. But another part stemmed from government policies that could only hinder the South's convergence on national levels of per capita income. The tariff, debt retirement, and assorted expenditures of the U.S. government imposed a burden that fell heavily on this cotton exporting region and transferred wealth North, whereas ineptly designed banking

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[115]Shlomowitz, "The Origins of Southern Sharecropping," 572–3.

legislation created barriers that arrested for decades the financial recovery of the

South's agricultural sector. The Republican Party's political exploitation of the

defeated South therefore harmed blacks as well as whites.

Slavery's abolition, nevertheless, entailed immense benefits for the

freedmen. By 1879 the average agricultural income of blacks had risen by at least

45 percent, or still more if one attaches a dollar value to their added leisure.[116]

Despite the Republican failure to redistribute large plantations, blacks had

purchased 10 percent of the South's agricultural land, at a time when many white

farmers were losing title. Not only were blacks accumulating real estate and other

forms of wealth faster than white Southerners, but even in the face of widespread

discrimination, their incomes rose faster too—at a rate of 2.7 percent per year.[117]

Landowners and merchants tried to obstruct black mobility with laws that

prohibited the "enticement" of laborers, that licensed labor brokers, and that made

breaching labor contracts a criminal offense. To the extent that anti–enticement

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[116]Kenneth Ng and Nancy Virts, "The Value of Freedom," *Journal of Economic History*, 49 (Dec 1989), 958–65. Their estimate is a revision of figures found in Ransom and Sutch, *One Kind of Freedom*, pp. 3–7, and applies to blacks who worked large plantations. For the average black slave, on both large and small plantations, the gain is over 60 percent. Including leisure raises the gain for slaves on large plantations to somewhere between 99 and 178 percent. If we accept the higher estimates for prewar slave income in Robert William Fogel and Stanley L. Engerman, *Time on the Cross*, v. 2, *Evidence and Methods—A Supplement* (Boston: Little, Brown, 1974), p. 159, these gains are dampened somewhat but not erased. A different approach that reaches congenial conclusions is in Richard Vedder, Lowell Gallaway, and David C. Klingaman, "Black Exploitation and White Benefits: The Civil War Income Revolution," in America, ed., *The Wealth of Races*.

[117]Higgs, *Competition and Coercion*, pp. 98–102. For a simulation which shows that nearly all of the income difference between the races in the postbellum South could have resulted from initial endowments of wealth, even without any discrimination, see Stephen J. DeCanio, "Accumulation and Discrimination in the Postbellum South," *Explorations in Economic History*, 16 (Apr 1979), 182–206, reprinted in Walton and Shepherd, eds., *Market Institutions and Economic Progress in the New South 1865–1900*.

laws, labor–broker licenses, vagrancy statutes, and the convict–lease system successfully mimicked antebellum slavery, they clearly did so at much higher cost, contributing to the South's postwar poverty.[118] Nonetheless, liberty was working out very much as the free–labor ideology of the radical abolitionists had predicted.

The same year that *One Kind of Freedom* appeared, Robert Higgs brought forth *Competition and Coercion: Blacks in the American Economy*, the most solid investigation of black economic gains within the South after emancipation. No writer more scrupulously distinguishes between market relations and racist coercion. Higgs shows that blacks invariably benefited from the market unless private or public violence obstructed its operation. Ransom and Sutch, of course, dispute Higgs's optimistic data.[119] Everyone agrees that emancipation itself was a major economic boon; disagreement is over how rapidly the economic status of blacks improved afterwards, particularly relative to white Southerners.

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[118]Investigations of the coercive disabilities that blacks faced after emancipation include William Cohen, "Negro Involuntary Servitude in the South, 1865–1940: A Preliminary Analysis," *Journal of Southern History*, 42 (Feb 1976), 31–60, and Daniel A. Novak, *The Wheel of Servitude: Black Forced Labor After Slavery* (Lexington: University Press of Kentucky, 1978). Jaynes tries to show in *Branches Without Roots* that these disabilities were far more effective and harmful than Higgs makes allowance for.

[119]Roger L. Ransom and Richard Sutch, "Growth and Welfare in the American South in the Nineteenth Century," *Explorations in Economic History*, 16 (Apr 1979), 207–36, reprinted in Walton and Shepherd, eds., *Market Institutions and Economic Progress in the New South 1865–1900*. A review essay that remains useful despite its simplistic Marxist animus against all economic theory is Harold D. Woodman, "Sequel to Slavery: The New History Views the Postbellum South," *Journal of Southern History*, 43 (Nov 1977), 523–54.

Subsequent statistical analyses of Georgia data by Higgs himself and by Robert A. Margo are consistent with the relative gains initially found by Higgs.[120]

These gains by freedmen appeared so threatening that whites eventually resorted to more severe racial oppression. The story of how the 1890s witnessed a new, more virulent wave of Jim Crow laws all across the South is too well known to repeat here.[121] Richard Vedder, Lowell Gallaway, and David C. Klingaman suggest that, with the twentieth century's arrival, southern blacks ceased to experience any improvement relative to whites, even though the average income of both races continued to rise.[122] It was this relative stagnation that motivated black migration to the North.

Gavin Wright takes the logic of labor flows even further in *Old South, New South: Revolutions in the Southern Economy Since the Civil War*, a

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[120]Robert Higgs, "Accumulation of Property by Southern Blacks Before World War I," *American Economic Review*, 72 (Sep 1982), 725–35; and Robert A. Margo, "Accumulation of Property by Southern Blacks Before World War One: Comment and Further Evidence," *ibid.*, 74 (Sep 1984), 777–81.

[121]The work that first called attention to the late origins of Jim Crow legislation was C. Vann Woodward, *The Strange Career of Jim Crow*, 3rd edn. (New York: Oxford University Press, 1974), originally published in 1957 and characterized by two of the author's students as "unquestionably the single most influential book ever written on the history of American race relations"—J. Morgan Kousser and James M. McPherson, "C. Vann Woodward: An Assessment of His Work and Influence," in Kousser and McPherson, eds., *Region, Race, and Reconstruction: Essays in Honor of C. Vann Woodward* (New York: Oxford University Press, 1982), p. xv. Since its first publication in 1955, Woodward's milestone has come in for its share of criticism, but nearly all of this revolves around the causes of segregation and the extent to which *de facto* segregation predated Jim Crow laws. Woodward's basic thesis remains sound. For a review of the controversy, see Woodward, "The Strange Career of a Historical Controversy," in *American Counterpoint: Slavery and Racism in the North–South Dialogue* (Boston: Little Brown, 1971).

[122]Vedder, Gallaway, and Klingaman, "Black Exploitation and White Benefits."

Malthusian explanation for southern poverty.[123] Agreeing with Higgs that competition within the South usually surmounted racial obstacles, Wright identifies the real problem as lack of competition between the South and the rest of the country. Without interregional labor mobility, population growth ate up increases in southern output. The South remained an isolated, low–wage labor market for both blacks and whites. Not until the two sections became economically integrated after World War II did the South's income finally catch up with the North's. The movement of workers, however, is not the only way to equalize wage rates. Another way is through capital mobility, which can increase per capita investment and therefore output, bringing us back again to the South's financial system. Also worth observing is that the regional equilibration was only completed after the demise of protectionist trade duties.

Southern slavery was not so much a *peculiar* as an *inefficient* institution. Although profitable for masters, its total losses far exceeded the gains. The deadweight loss fell most heavily on enslaved blacks but also impeded economic prosperity for the South's free, nonslaveholders. But because the system artificially stimulated agricultural production, its negative welfare effects were partially masked. The collapse of economic output that followed emancipation thus resulted from an improvement in living standards and finally revealed the extent of this inefficiency. Once the obstacle of slavery was removed, it was just a matter of time before the southern states would match the income levels of the rest of the country. Unfortunately that time was unnecessarily lengthened by the

[123]Wright, *Old South, New South*. See also Gavin Wright, "The Strange Career of the New Southern Economic History," *Reviews in American History*, 10 (Dec 1982), 164–80.

coercive interventions of local, state, and particularly national authorities. Without doubt, the market did much better by the former slaves than government at any level after the American Civil War.

TABLE 7.1
Easterlin's Estimates of Regional Per Capita Income
as Percentage of United States Average, 1840–1950

	1840	1860	1880	1900	1920	1930	1940	1950
National Average	100	100	100	100	100	100	100	100
North	**114**	**107**	**118**	**118**	**115**	**118**	**114**	**112**
Northeast	135	139	141	137	132	138	124	115
North Central	68	68	98	103	100	101	103	106
South	**76**	**72**	**51**	**51**	**62**	**55**	**65**	**73**
South Atlantic	70	65	45	45	59	56	69	74
East South Central	73	68	51	49	52	48	55	62
West South Central	144	115	60	61	72	61	70	80
West			**190**	**154**	**122**	**115**	**125**	**114**

TABLE 7.1
(continued)

Regions: *Northeast*, Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland; *North Central*, Ohio, Indiana, Illinois, Michigan, Wisconsin, Missouri, Iowa, Minnesota (after 1840), Kansas (after 1840), Nebraska (after 1840), South Dakota (after 1860), North Dakota (after 1860); *South Atlantic*, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida; *East South Central*, Kentucky, Tennessee, Alabama, Mississippi; *West South Central*, Arkansas, Louisiana, Texas (after 1860), Oklahoma (after 1880); *West*, California, Oregon, Washington, New Mexico, Colorado, Utah, Nevada, Montana (after 1880), Idaho (after 1880), Wyoming (after 1880), and Arizona (after 1880).

Sources: Richard A. Easterlin, "Regional Income Trends, 1840–1950," in Seymour E. Harris, ed., *American Economic History* (New York: McGraw–Hill, 1961), p. 528. Figures for North are my calculations based on Easterlin's estimates for Northeast and North Central. The relative of 154 for the West in 1900 is corrected from Easterlin's original figure, 163, as per Robert Higgs*, The Transformation of the American Economy, 1865–1914: An Essay in Interpretation* (New York: John Wiley & Sons, 1971).

TABLE 7.2
Engerman's Estimates of Commodity Output by Region
for 1860–1880 (1879 Prices)

| | STATES OF CONFEDERACY | | REST OF COUNTRY | |
	Total (millions)	Per Capita	Total (millions)	Per Capita
1860	$710	$77.7	$1674	$74.8
1870	534	47.6	2337	81.5
1880	838	61.5	3876	105.8

Source: Stanley L. Engerman, "The Economic Impact of the Civil War," *Explorations in Entrepreneurial History*, 2nd ser., 3 (Spring/Summer 1966), 176–199.

TABLE 7.3
Easterlin's Estimates of Annual Growth Rates
in Real Per Capita Personal Income by State
for the South (1880 to 1900)

State	Growth Rate
Virginia	2.15
West Virginia	2.26
North Carolina	1.38
South Carolina	0.98
Georgia	0.81
Florida	2.64
Kentucky	1.42
Tennessee	1.89
Alabama	1.14
Mississippi	0.96
Arkansas	1.43
Louisiana	0.44
Texas	2.53
National Average	**1.59**

Source: Richard A. Easterlin, "Regional Growth of Income: Long Term Tendencies, 1880–1950," in Simon Kuznets, Ann Ratner Miller, and Easterlin, *Population Redistribution and Economic Growth, United States, 1870–1950*, v. 2, *Analyses of Economic Change* (Philadelphia: American Philosophical Society, 1960), p. 185. Calculated from the formula: Annual growth rate = (Real income 1900/Real income 1880)$^{1/20}$ – 1.

Appendix A
Texas Income in 1860

We have observed in Chapter 4 that the incorporation of Texas was the primary difference between Richard A. Easterlin's regional income relatives for the antebellum period (Table 4.2) and Stanley L. Engerman's regional income levels (Table 4.1). Easterlin left out Texas from his estimates for 1840, because it was not yet part of the Union. In his regional relatives for 1860, Texas is still not counted in the South although it is part of the national average. Engerman, in contrast, added Texas to the West South Central region for both years, assigning it the same per capita income in 1840 as in 1860. As best I can tell, Engerman's value was $220 per Texan.

For reasons explained in the chapter, I thought that figure suspiciously high. So I checked it against data from the 1860 Census, which was Engerman's source. Table A.1 summarizes the manufacturing and agricultural output reported in the census volumes for that year.[1] The total value of this output adds up to $44.737 million. Dividing by Texas' 1860 population, 604,000, gives per capita output of only $74.[2] Of course, the census did not report all output. But before we

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[1] [U.S. Census Office, 1860 Census], *Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1865), pp. 593–4; [U.S. Census Office, 1860 Census], *Agriculture of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1864), pp. 148–51, 184–7.

[2] Texas population is in U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series A 195–209, p. 35.

consider what might be missing, let us examine some details of this first–round, lower estimate.

For certain items—specifically manufacturing, orchard products, market–garden products, home–made manufactures, and animals slaughtered—the 1860 census directly reported the value of output (presumably at local prices), and no further computations were necessary. For all other products, the census returns listed only quantities, in such units as bushels or pounds, and I had to multiply by prices to calculate the output's value. In most cases, I employed the 1860 prices from the decennial series for assorted agricultural products published by Marvin W. Towne and Wayne D. Rasmussen.[3] The Towne–Rasmussen series present national, rather than local, prices. For three of the agricultural products listed in the census—hemp, flax, and silk—output reported for Texas was so low (less than 1,000 units) that I omitted them from Table A.1. For the output of two others—clover seed and grass seeds—I did not calculate value because Towne and Rasmussen provided no price data, the quantities suggested that these products could be safely ignored, and they are intermediate rather than final goods anyway. Towne and Rasmussen also provided no prices for wine, beeswax, and honey, but I computed substitutes through a method described below. Finally, for butter and cheese, I adopted from

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[3]Marvin W. Towne and Wayne D. Rasmussen, "Farm Gross Product and Gross Investment in the Nineteenth Century," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth, v. 24 (Princeton, NJ: Princeton University Press, 1960), pp. 255–315. Towne and Rasmussen's source for antebellum prices was the exhaustive four–volume report of the U.S. Congress, Senate Committee on Finance, *Wholesale Prices, Wages, and Transportation*, Senate Report No. 1394, 52nd Cong., 2nd sess. (3 Mar 1893), usually referred to as the Aldrich Report.

Towne and Rasmussen a procedure for converting these dairy products into fluid milk equivalents and then computed their value on the basis of the milk price.

According to the census data, the Lone Star state's most important product in 1860 was cotton, so getting its value correct is critical. Towne and Rasmussen's 1860 price for ginned cotton is 11.5 cents per pound, which is within the range of other reports. Robert William Fogel and Engerman in some of their earlier work used a cotton price of 11.0 cents per pound for 1860 and 12.1 cents for 1859.[4] The 1860 Census was reporting on the 1859 crop, while Fogel and Engerman had determined prices for the commercial year. Their 1859 price therefore covered from September 1, 1859, to August 31, 1860, and would be the more appropriate choice. Their source, however, was James L. Watkins, who was looking at New York prices.[5] We can find a monthly series of New Orleans cotton prices in Lewis Cecil Gray's two–volume history of southern agriculture.[6] The New Orleans price varied between 10.5 and 11.1 cents for the 1859 commercial year, with a weighted average of 10.8 cents. In short, the Towne–Rasmussen price is reasonable, with a trivial upward bias.

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[4]Robert William Fogel and Stanley L. Engerman, "The Economics of Slavery," in Fogel and Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971), p. 316.

[5]James L. Watkins, *Production and Prices of Cotton for One Hundred Years*, U.S. Department of Agriculture, Miscellaneous Series, Bulletin No. 9 (Washington: Government Printing Office, 1895). Watkins later published a more inclusive set of data, *King Cotton: A Historical and Statistical Review, 1790 to 1908* (New York: James L. Watkins & Son, 1909).

[6]Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860* (Washington: Carnegie Institution, 1933), v. 2, pp. 1027–9. Arthur Harrison Cole, *Wholesale Commodity Prices in the United States, 1700–1861* (Cambridge, MA: Harvard University Press, 1938), supplement, pp. 350, 354, provides monthly cotton price series for Philadelphia, New York, Charleston, New Orleans, and Cincinnati, but only to the nearest cent. His New Orleans prices are in the same neighborhood as Gray's.

One way of checking our $19.826 million estimate for the value of 1859 Texas cotton crop is to employ the same method Easterlin originally used to construct his regional income relatives for 1860. Easterlin started with Robert E. Gallman's estimates of gross income from 1859 commodity output for the entire U.S.—which for cotton alone was $199.7 million.[7] Analogously to Easterlin, we can then determine Texas' contribution to this *monetary value* by looking at its *physical share* of the 1859 cotton crop. The 1860 Census reports the country's total output of ginned cotton at 5,387 thousand bales of 400 pounds each. Texas' produced 431 thousand of those bales, or 8.0 percent of the total crop. Eight percent of $199.7 million is $16.0 million, within the range of my own estimate in Table A.1 but $3.8 million lower. This would imply a price of 9.25 cents per pound, except that Gallman subtracted any cotton output that was sold to manufacturers within the United States. While appropriate for determining value added for the country overall, this will understate Texas income.[8]

Fortunately, Towne and Rasmussen also value the 1859 cotton crop but without such a deduction. Their total is therefore slightly higher: $217.3 million.[9] Texas' share would then have been $17.4 million, still below our value in Table

[7]Robert E. Gallman, "Commodity Output, 1839–1899," in *Trends in the American Economy in the Nineteenth Century*, table A–2, p. 46.

[8]Apparently Gallman valued 5.387 million 400–pound bales at 11.45 cents per pound, and then subtracted the $47.528 million cost of raw materials for U.S. clothing manufacturers reported in the 1860 Census. Only $2,659 of this cost originated within Texas. For the cotton price Gallman, like Towne and Rasmussen, relied on the Aldrich Report.

[9]Towne and Rasmussen, "Farm Gross Product and Gross Investment in the Nineteenth Century," p. 308. Towne and Rasmussen's source was U.S. Department of Agriculture, *Statistics on Cotton and Related Data*, Statistical Bulletin No. 99, June 1951, converted from a crop year to a calendar year basis. This Department of Agriculture Bulletin, for unexplained reasons, gives slightly different estimates than those appearing in the publication written by Watkins.

A.1. If we wish to derive an absolute upper limit on Texas cotton, we can vary the size of the bale. Although the census alleges that all bales are 400 pounds, both Watkins and Gray report that weights varied. "By the forties," writes the latter author, "the majority of Texas bales weighed 500 pounds."[10] Reevaluating Texas' 431 bales at this higher weight, and a higher price of 12.1 cents per pound, pushes the value of the crop to $26.076 million. The state's total measured output rises by $6.25 million to $50.987 million, or still only $84 per person.

Applying the Easterlin test to Gallman's output compilations is the method by which I computed the value of Texas wine, beeswax, and honey. We can also use it to check output values for the state's other major crops: wheat and corn. Table A.2 reveals that the Gallman–derived estimates for the income from these two crops is below my estimate in Table A.1, corn significantly so. That is no doubt due to the fact that Gallman removed any "output used in production within the agricultural sector," for example, corn that went to feed livestock.[11] This kind of deduction would presumably be nonexistent for cotton. But it remains one reason the values in Table A.1 will tend to overstate Texas' total income. The entry for hay is the most obvious such instance, since almost none is used in human consumption and qualifies as final output.

Another of the Lone Star state's major products was meat, particularly beef. Here the 1860 Census renders a serious underestimate. It gives the total value of animals slaughtered, without regard to type, whereas Gallman used the

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[10]Gray, *History of Agriculture in the Southern United States to 1860*, p. 705.

[11]Gallman, "Commodity Output, 1839–1899," p. 44. Gallman's also subtracts output used for seed, which obviously was already removed from ginned cotton.

census returns on livestock inventory to break down meat production into the categories of beef, pork, veal, and lamb/mutton. The Gallman nationwide estimates for the total value of these four meats in 1859, $488.6 million, is more than twice the census reported value of animals slaughtered nationwide, $213.6 million.[12] Fortunately, the census' livestock inventories allow us to apportion by state Gallman's meat values. Texas contained 2.8 of the country's 14.8 million non–milch cattle, suggesting it may have generated $34.2 million of the country's total beef and veal production.[13]

This figure is undoubtedly biased upward, because it assumes that Texas range cattle equaled in value the cattle of the Midwest and other regions, something notoriously untrue. Eugene Genovese made the most extreme assertion that southern livestock generally was far inferior to northern during the antebellum era.[14] Even Fogel, early on, went so far as to speculate that the

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[12][1860 Census], *Agriculture of the United States in 1860*, p. 187. The best published discussion of and justification for Gallman's estimates of meat production appear in Richard A. Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth Series, v. 24 (Princeton, NJ: Princeton University Press, 1960), pp. 115–20; Easterlin employed Gallman's technique to revise Ezra Seaman's meat estimates for 1840.

[13]Of course, milch cows were also eventually slaughtered, so we could instead use the Texas ratio for total cattle, which is 4.3 million divided by 26.7 million, or 16.1 percent, a lower number. This adds together the categories of "milch cows" and "other cattle" from the census returns, along with the small estimates of "neat cattle" (dairy or otherwise unspecified) listed "as returned by assistant marshals, the same not being returned on the schedules of agriculture" in [1860 Census], *Agriculture of the United States in 1860*, p. 192. Towne and Rasmussen, "Farm Gross Product and Gross Investment in the Nineteenth Century," pp. 282–5, also compute the 1860 value of meat output, and their estimates are almost identical to Gallman's.

[14]Eugene Genovese, "Livestock in the Slave Economy of the Old South—A Revised View," *Agricultural History*, 36 (Jul 1962), 143–9, reprinted in Genovese, *The Political Economy of Slavery: Studies in the Economy and Society of the Slave South* (New York: Random House, 1965). See also Sam Bowers Hilliard, *Hog Meat and Hoecake: Food Supply in the Old South,*

disparity became greater between 1840 and 1860.[15] Subsequent research has

tempered this judgment considerably, especially with respect to the slaughter

weight of southern hogs.[16] Nevertheless, Ezra C. Seaman put the average 1840

value of cattle in the free states at $12 as compared with only $8 for the slave

states.[17] Gray reports the slaughter weight of cattle coming to Richmond as late as

1854 was 750 pounds, compared with a *national average* of 950 pounds, reported

in Towne and Rasmussen.[18] Fogel and Engerman had to make a significant

adjustment for this fact when they tried to compute the relative productivity of

northern and southern agriculture, although they pointed out that it should be

partly offset by a simultaneous reduction in the quantity of corn and other crops

necessary for feeding the lighter livestock of the South.[19] And in 1868, Lewis F.

Allen, former president of the New York State Agricultural Society, wrote a

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1840–1860 (Carbondale: Southern Illinois University Press, 1972), p. 129. Tamara Miner Haygood offers a biomedical explanation for the inferiority of southern cattle in "Cows, Ticks, and Disease: A Medical Interpretation of the Southern Cattle Industry," *Journal of Southern History*, 52 (Nov 1986), 551–64.

[15]Fogel, "American Interregional Trade in the Nineteenth Century," in Ralph L. Andreano, ed., *New Views on American Economic Development: A Selective Anthology of Recent Work* (Cambridge, MA: Schenkman, 1965), p. 216.

[16]See particularly Gallman, "Self–Sufficiency in the Cotton Economy of the Antebellum South," *Agricultural History*, 44 (Jan 1970), 5–23.

[17]Ezra C. Seaman, *Essays on the Progress of Nations, in Civilization, Productive Industry, Wealth and Population . . .* (New York: Charles Scribner, 1852), p. 454.

[18]Gray, *History of Agriculture in the Southern United States to 1860*, p. 846; Towne and Rasmussen, "Farm Gross Product and Gross Investment in the Nineteenth Century," p. 283.

[19]Fogel and Engerman, *Time on the Cross*, v. 2, *Evidence and Methods: A Supplement* (Boston: Little, Brown, 1974), pp. 95–6, 133–4. See also Donghyu Yang, "Agricultural Productivity in the Northern United States, 1860," in Fogel and Engerman, eds., *Without Consent or Contract: The Rise and Fall of American Slavery—Markets and Production: Technical Papers*, v. 1 (New York: W. W. Norton, 1992), pp. 305–7.

handbook on cattle breeding and management in which he alleged that Texas

cattle did not even measure up to *southern standards*: "enormous numbers of

semi–wild animals rove over the wide plains and savannas of its extensive

territory, but of far less value per head, (probably not exceeding one–half,) than

those . . . in the other Southern States."[20]

Nonetheless, Gallman's estimates do prove that beef was a more important

source of income for Texas than cotton and requires us to raise Table A.1's

estimate of the state's total income by nearly 75 percent. A similar correction for

pork would add $12.3 million, whereas for lamb and mutton less than $1 million

(see Table A.2). Table A.1 contains no listings for chickens, eggs, milk, or

improvements to farm land, all of which Gallman estimated. Because the 1860

Census made no returns on fowl, we have no basis for determining how much of

the $59.9 million worth of eggs and chickens produced in the U.S. in 1859

belongs to Texas. Likewise with regard to the total $43.3 million worth of farm

improvements. To arrive at milk estimates, Gallman extrapolated backwards from

the post–Civil War period on the basis of the fluid milk equivalents for butter and

cheese. This suggests that the omission of milk results in Table A.1 understating

Texas' income from dairy products by almost $1 million.

A further consideration applies to manufacturing. The census total for

Texas of $6.577 million is the value of final products for all enumerated

industries. But many of these industries purchased inputs from the agricultural

sector. The state's most important manufactured products, for instance, were flour

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[20]Lewis F. Allen, *American Cattle: Their History, Breeding and Management* (New York: Orange Judd, 1868), p. 12.

and meal, contributing $2.607 million to the total. Manufacturing is therefore overstated because of this double counting of agricultural output. The 1860 Census also recorded the cost of raw materials, which came to a total of $3.367 million for all industries within the state. One way of adjusting the manufacturing entry would be to subtract these costs, giving $3.21 million of value added in Texas.

The estimate would then be biased downward, however, because not all raw materials were agricultural. This would apply to Texas' second largest industry, lumber, with $1.735 million worth of final output, as well as to the returns from other less significant businesses such as oyster fisheries and salt. If raw materials were bought from outside the state, they should still be excluded, but not otherwise. We can test our estimate against Gallman, who reported total U.S. income from mining, manufacturing, and construction in 1859 at a maximum of $1,077 million.[21] The comparable census figure for value added from manufacturing is $1,855.861 million in products minus $1,031.605 raw materials, or $824.256 million.[22] The Texas portion of that is 0.4 percent. Multiplying times Gallman's estimate indicates that the state's manufacturing should be valued at $4.194 million (see Table A.2). But Gallman still excludes "fishing, forestry, precious metals mining, nonfarm home manufacturing, and the independent hand trades [e.g. blacksmithing, coppersmithing, and carriagesmithing]," some of

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[21]Gallman, "Commodity Output, 1839–1899," table A–1, p. 43.

[22][1860 Census], *Manufactures of the United States in 1860*, p. 729. Determining the Texas share on the basis of final output alone rather than value added would not change the result.

which appear in the returns.[23] All considered, it seems best to leave our manufacturing estimate unaltered, recognizing that it may contain an upward bias of as much as $2.5 million.

When we add all the other, livestock and dairy corrections together, as in Table A.3, the state's total income in 1860 nearly doubles from $44.737 to $80.900 million. On a per capita basis that is $134, much closer to Engerman's estimate of $220 yet still very far away. It does not even reach $165, the average income per person in 1860 for the two other West South Central states, Louisiana and Arkansas. Admittedly, $134 per person still excludes a lot. The 1860 Census only gives us data for commodity production, which as we noted in Chapter 4 covers about two–thirds of all output. It omits the value added from commodity distribution, including transportation, and from the service sectors, including finance.

But the two–thirds ratio is an average for the entire country. It contains industrialized and urbanized states like Massachusetts, where the contribution of the missing sectors was above average. Texas was most likely below that average. Agriculture, by itself, accounted for 65 percent of the South's total 1860 output (in contrast to 36 and 17 percent for the Midwest and Northeast respectively), and the estimate in Table A.3 should capture most of that.[24] Moreover, the $134 figure continues to carry some definite upward biases. It is still not utterly impossible that the unrecorded items could have raised Texas output in 1860 to $220, higher

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[23]Gallman, "Commodity Output, 1839–1899," p. 13.

[24]Raymond L. Cohn, "Antebellum Regional Incomes: Another Look," *Explorations in Economic History*, 18 (Oct 1981), 340.

than nearly any other state in the Union. Yet I can see no firm evidence that this is at all likely. Much more probable: Texas per capita income in 1860 rested somewhere between $134 and the average for the rest of the Southwest, $165.

**Texas Income from Manufacturing and Agriculture
as Reported in the 1860 Census (1860 Prices)**

PRODUCT	OUTPUT (in thousands)	PRICE	VALUE (in thousands)
Manufacturing	$6,577		$6,577
Wheat	1,478 bu.	$1.02/bu.	1,508
Rye	112 bu.	77¢/bu.	86
Corn	16,501 bu.	46¢/bu.	7,590
Oats	986 bu.	34¢/bu.	335
Rice	26 lbs.[a]	$2.32/cwt.	1
Tobacco	98 lbs.	8.6¢/lb.	8
Cotton	431 bales[b]	11.5¢/lb.	19,826
Wool	1,494 lbs.	18.4¢/lb.	275
Peas and Beans	342 bu.	73¢/bu.	250
Irish Potatoes	174 bu.	37¢/bu.	64
Sweet Potatoes	1,847 bu.	48¢/bu.	887
Barley	68 bu.	58¢/bu.	39
Buckwheat	1 bu.	52¢/bu.	1
Orchard Products	$48		48
Wine	14 gal.	[c]	26
Market-Garden Products	$178		178
Butter	5,851 lbs.	[d]	486

(continued)

PRODUCT	OUTPUT (in thousands)	PRICE	VALUE (in thousands)
Cheese	275 lbs.	[d]	11
Hay	12 tons	$8.76/ton	105
Clover Seed	1 bu.		
Grass Seeds	5 bu.		
Cane Sugar	5.099 hhds.[e]	$162.50/ton	414
Cane Molasses	408 gal.	27.3¢/gal.	111
Sorghum Molasses	112 gal.	82¢/gal.	92
Beeswax	28 lbs.	[f]	91
Honey	594 lbs.	[f]	
Home-Made Manufactures	$584		584
Animals Slaughtered	$5,144		5,144
TOTAL			$44,737

[a]Value calculated on the basis of 100 lbs. of rice equals 1 cwt. (hundredweight). Thus, 26,000 lbs. of rice/100 x $2.32/cwt. of rice = $603.

[b]1860 Census cotton bales contained 400 lbs. of ginned cotton. Thus, 431,000 bales x 400 lbs. of cotton/bale x $.115/lb. of cotton = $19,826,000.

[c]An implicit price for wine was derived from Gallman, p. 46, who valued the 1859 national output at $3 million. The 1860 Census reports national production at 1,627,000 gallons, or $1.84/gal.

(continued)

[d]Butter and cheese were converted into fluid milk equivalents, as described in Towne and Rasmussen, p. 288, and then valued at 83¢/cwt. The equivalents are 10 lbs. of butter = 21 lbs. of cheese = 100 lbs. of fluid milk. Thus, (5,851,000 lbs. of butter x 10 lbs. of fluid milk/lb. of butter)/100 x $.83/cwt. of fluid milk = $485,633. And (275,000 lbs. of cheese x 4.76 lbs. of fluid milk/lb. of cheese)/100 = $.83/cwt. of fluid milk = $10,869.

[e]1860 Census hhds. (hogsheads) of cane sugar contained 1000 lbs. Thus, (5,099 hhds. of cane sugar x 1000 lbs./hhds.)/(2000 lbs./ton) x $162.50/ton of cane sugar = $414,294.

[f]An implicit price for honey and beeswax was derived from Gallman, p. 47, who valued 1859 national output of the two products at $3.6 million. The 1860 Census reports national production at 23,336,000 lbs. of honey and 1,323,000 lbs. of beeswax or $.145/lb.

Sources: *Output*, [U.S. Census Office, 1860 Census], *Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1865), pp. 593–4; [U.S. Census Office, 1860 Census], *Agriculture of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1864), pp. 148–51, 184–7.

Prices, Marvin W. Towne and Wayne D. Rasmussen, "Farm Gross Product and Gross Investment in the Nineteenth Century," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth, v. 24 (Princeton, NJ: Princeton University Press, 1960), pp. 255–315; and Robert E. Gallman, "Commodity Output, 1839–1899," in *ibid.*, pp. 46–7.

TABLE A.2
Test of 1860 Census Data for Texas against Gallman's Estimates of U.S. Income (All Dollar Amounts and Quantities in Millions, 1860 Prices)

PRODUCT	U.S GROSS. INCOME (Gallman)	TOTAL U.S. OUTPUT (1860 Census)	TEXAS OUTPUT (1860 Census)	TEXAS SHARE (of Total Output)	TEXAS INCOME (Gallman)	TEXAS INCOME (Table A.1)
Cotton[a]	$199.7	5.387 bal.	.431 bal.	8.0 %	$16.0	$19.8
Wheat	140.3	173.1 bu.	1.48 bu.	0.9 %	1.2	1.5
Corn	85.1	838.8 bu.	16.50 bu.	2.0 %	1.7	7.6
Hay	37.6	19.08 tons	.012 tons	0.1 %	0.0	0.1
Beef/Veal[b]	183.2	14.8 cat.	2.76 cat.	18.7 %	34.2	} 5.1
Pork	301.8	33.5 hogs	1.37 hogs	4.1 %	12.3	
Lamb/Mutton	3.6	22.5 sheep	.753 sheep	3.4 %	.1	
Chickens/Eggs	59.9	n.a.	n.a		?	n.a.
Dairy[c]	118.7	5,090 lbs.	59.8 lbs.	1.2 %	1.4	.5
Improvements[d]	43.3	n.a	n.a.		?	n.a
Manufacturing[e]	1077.0	$824.3	$3.2	0.4 %	4.2	6.6

[a]Cotton income apportioned on the basis of 400–pound bales (bal.) of ginned cotton. [b]Beef and veal apportioned on the basis of non–milch cattle (cat.). [c]Dairy products apportioned on the basis of butter and cheese converted into fluid milk equivalents. The equivalents are 10 lbs. of butter = 21 lbs. of cheese = 100 lbs. of fluid milk. U.S. output, according to the 1860 Census, was 459.681 million lbs. of butter and 103.664 million lbs. of cheese. Texas output was 5.851 million lbs. of butter and .275 million lbs. of cheese.

[d]Improvements to land made by farm labor.

[e]Gallman estimate is total from mining, manufacturing, and construction, variant A. Census estimates are value added, which subtracts from the value of products the costs of raw materials For total U.S. that is $1,855.861 million minus $1,031.605 million. For Texas that is $6.577 million minus $3.367 million.

Sources: Robert E. Gallman, "Commodity Output, 1839–1899," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth, v. 24 (Princeton, NJ: Princeton University Press, 1960), pp. 43, 46–7; [U.S. Census Office, 1860 Census], *Agriculture of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1864), pp. 184–7; [U.S. Census Office, 1860 Census], *Manufactures of the United States in 1860: Compiled from the Original Returns of the Eighth Census* (Washington: Government Printing Office, 1865), p. 729; and Table A.1.

TABLE A.3
Revised Estimate of Texas Income from Manufacturing
and Agriculture for 1860 (1860 Prices)

ADJUSTMENT	VALUE (in thousands)
Total from Table A.1	$44,737
Deductions:	
Wheat Used in Agricultural Production	308
Corn Used in Agricultural Production	5,916
Hay Used in Agricultural Production	81
Census Estimate of Animals Slaughtered	5,144
Additions:	
Beef and Veal	34,238
Pork	12,355
Lamb and Mutton	121
Milk	898
TOTAL	$80,900

Sources: Tables A.1 and A.2

Appendix B
Louisiana Income in 1840

A further difficulty with Richard A. Easterlin's regional income relatives (Table 4.2) applies, as noted in Chapter 4, to the West South Central states for 1840. Even without Stanley L. Engerman's addition of Texas, the region boasts the country's highest per capita income in that year: twice the income of the neighboring East South Central states or the North Central states, and higher even than the Northeast. Although the West South Central states, comprising just Louisiana and Arkansas, claimed only 3 percent of the U.S. population in 1840, such a high level of output per person is still suspect. Because Louisiana held the bulk of these inhabitants—352 thousand out of region's 450 thousand—a closer look at that state will allow us to evaluate Easterlin's overall economic appraisal of the region.[1]

In deriving his figures, Easterlin found that the underlying data divided economic output into three categories: (1) Commodity production; or basically the products of agriculture, manufacturing, and mining. For these sectors the 1840 census provides the most direct and complete information. (2) Commodity distribution; in other words commerce, including navigation and transportation. The census data for these sectors are more fragmentary. (3) Service sectors, including finance, insurance, real estate, personal and professional services, government, and imputed rents and mortgage interest on nonfarm

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[1]Population figures from U.S. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to 1970* (Washington: Government Printing Office, 1975), pt. 1, series A 195–209, pp. 24, 28.

owner–occupied homes. At this early date, census data on the third category are nearly non–existent. Easterlin was thus able to construct estimates of output on a state-by-state basis for the first two, commodity production and distribution, but for the third he extrapolated from 1880 data and only at the regional level.

Table B.1 reproduces Easterlin's 1840 estimates for each state.[2] The first column includes all commodity production and distribution, whereas the second drop outs commodity distribution. Observe that Louisiana, combining both categories of output, has an average income of $113 (in 1840 dollars), higher than any other state except Rhode Island, where average income is $118. When you ignore commerce, navigation, and transportation, however, Louisiana falls to fourth place ($74), behind Rhode Island ($102), Massachusetts ($86), Connecticut ($81), and the slave state of Mississippi ($84), while edging out New Jersey by just $1. The other state in Louisiana's region, Arkansas, generates output per person of $68 or $65, depending on whether you count commerce. Louisiana's relative prosperity even without commerce reveals the major economic role played by its rich, alluvial soils, something it shared with Mississippi. But what pushes Louisiana almost to the top, dragging the region along, is the high value that Easterlin attributed to its commercial sector.

Gerald Gunderson, you may recall, was skeptical of the income differential Easterlin reported between the West South Central states and the East South Central states for 1840. I have already explained how Gunderson

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[2]Richard A. Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth Series, v. 24 (Princeton, NJ: Princeton University Press, 1960), pp. 97–8.

erroneously concluded that the income for the rest of the South was too low. His analysis, however, did expose the anomaly of Louisiana. Taking Easterlin's estimates for only commodity production in eleven of the slave states, Gunderson developed his own procedure for adding in estimates of both commodity distribution and the missing service sectors as well. The resulting state per capita income figures appear in Table B.2. In every single case save one, Gunderson's figures exceed Easterlin's higher set, as they should, because they incorporate all three categories of output rather than just two. The lone exception is Louisiana, where Gunderson comes up with income per person of only $105.[3]

Easterlin based his state-by-state estimates on the pre–Civil War study of Ezra C. Seaman. Seaman's own estimate of Louisiana's 1840 income was $111, again, second only to his estimate for Rhode Island.[4] The corresponding value assigned to Louisiana by Seaman's southern contemporary, George Tucker, was $99, not quite so high but still falling below only Tucker's values for Rhode Island and Massachusetts.[5] Both Seaman and Tucker relied upon the 1840 Census, supplemented with additional sources available to them plus their own wide knowledge of the American economy. Easterlin checked Seaman's results by going back to the census volumes himself. His reconstructions were usually

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[3]Gerald Gunderson, "Southern Ante–bellum Income Reconsidered," *Explorations in Economic History*, 10 (Winter 1973), 158–60. The specifics of Gunderson procedure need not detain us.

[4]Ezra C. Seaman, *Essays on the Progress of Nations, in Civilization, Productive Industry, Wealth and Population . . .* (New York: Charles Scribner, 1852), pp. 461–2.

[5]George Tucker, *Progress of the United States in Population and Wealth in Fifty Years: As Exhibited by the Decennial Census from 1790 to 1840, With an Appendix Containing on Abstract of the Census of 1850* (New York: Press of Hunt's Merchant's Magazine, 1855), p. 195.

within a few percentage points of Seaman's originals. Easterlin therefore accepted Seaman's numbers as is, with one major modification. He raised Seaman's meat values, using the techniques developed by Robert E. Gallman.[6] That explains why the income per capita originating in the first two categories of output (commodity production and distribution) for Louisiana is $111 according Seaman but $113 by Easterlin's reckoning.

I too went back to the 1840 Census to verify Seaman's work.[7] He reported the two major components of Louisiana's economy as agriculture, with value added of $21.7 million, and commerce, with value added of $13.7 million. Together they accounted for 90 percent of the state's total 1840 output of $39.128 million, as determined by Seaman. Dividing the latter amount by Louisiana's population yields $111 per person. Easterlin's revisions for meat raised agricultural output by about $650,000. Either way, I found the agricultural estimate unobjectionable. It seems to be confirmed by the census returns. The number that is dubious is Seaman's value added for commerce, which Easterlin embraced without alteration (although the fact that Easterlin presented a second set of state-by-state income figures with commerce left out of the totals reveals his own concern about Seaman's estimates).

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[6]Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," pp. 115–20; Robert E. Gallman, "Commodity Output, 1839–1899," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century.*

[7][U.S.] Department of State, [1840 Census], *Sixth Census or Enumeration of the Inhabitants of the United States* (Washington: Blair and Rives, 1841), pp. 256–61; [U.S.] Department of State, [1840 Census], *Compendium of the Enumeration of the Inhabitants and Statistics of the United States* (Washington: Thomas Allen, 1841), pp. 238–49.

Seaman did not detail his state estimates. His manipulations must therefore be inferred from his general treatment of the U.S. It seems clear that Seaman (see Table B.3) started with the total value of capital listed in the census for foreign trade; for retail dry goods, grocery, and other stores; for lumber yards; and for butchers and packers (total $31.476 million). He then added 10 percent for possible omissions, and multiplied by a return of 12.5 percent to estimate profits of $4.328 million. To this he added labor income. The 1840 Census lists 7,392 people employed in commerce in New Orleans, and Seaman assigned them an average annual wage of $1000. The remaining 1,157 employed in commerce elsewhere within the state earned $600 per year. The wage Seaman adopted for 1,984 Louisianans navigating the oceans and inland waterways was $350. And 291 butchers and packers got a $333.50 annual wage.[8] Total labor income from commerce within the state comes to $8.877 million. The remaining half million dollars, for a grand total of $13.7 million, must have been Seaman's estimate of tolls on Louisiana railroads and canals (all 1840 dollars).

The most remarkable feature of this total is the $1000 per year earned by over seven thousand workers in New Orleans. Seaman believed that 24,123 others employed in commerce in the cities of New York, Boston, Philadelphia, and Baltimore earned on average the same high income. New Orleans was indeed the country's fourth largest city in 1840. Yet while it contained a mere 13 percent of

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[8]Unlike all other categories of Louisiana employees, who are listed in the enumeration volume of the 1840 census, the butchers and packers are listed in the compendium volume. They therefore may already be part of the totals for commerce. Whether Seaman adjusted for this possible double–counting cannot now be determined. If he did, then income from wages will be lower with income from railroads and canals making up the difference.

the top five cities' total population, nearly a quarter of those with Seaman's

unusual earning power were in New Orleans.[9] By this accounting, between 2 and

4 percent of all residents of the other four major ports made that much money,

whereas for New Orleans, the percentage was over 7.[10] Louisiana thereby ends up

with the country's highest non–agricultural income per worker, $913, as

computed by Easterlin (Table B.1). The state coming in second is Arkansas, with

$795, then Florida with $610. The northern state with the highest non–agricultural

income per worker is Massachusetts, with $509, nowhere close to Louisiana.

Something is awry with these numbers, and an 1843 memorial to Congress

from the American Statistical Association offers one possible clue as to why. It

complained about the 1840 Census and specifically pinpointed the employment

figures:

> The principles on which people were classed, according to their several
> employments, seemed to have been very various among the different
> marshals, or the facts which they thus gathered have been very
> inaccurately recorded. Some seem to have included the whole population,
> men, women, and children, in these classes, arranging them, probably,
> according to the employment of head of the family, and some seem to
> have noticed only the males over 21 years of age; others seem to have
> noticed all who were sufficiently old to perform any service; and lastly,

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[9]New Orleans contained precisely 23 percent of those earning $1000 per year. The 1840
population of the U.S.'s five largest cities was: New York, 312,710; Philadelphia, 205,580;
Baltimore, 102,313; New Orleans, 102,193; Boston, 93,383.

[10]There is a discrepancy of 3,067 between the number the 1840 census reports as employed in
commerce in the five cities and the number to whom Seaman assigns $1000 per year. My best
guess is that Seaman adjusted the totals in the other ports upward. Without that adjustment, those
employed in commerce are Boston: 2,040 (2.2 percent of the city's entire population); New York:
11,365 (3.6 percent); Philadelphia: 5,660 (2.8 percent); and Baltimore: 1,991 (1.9 percent).

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some seem to have entirely neglected this duty, and have recorded none in some of the employments; and in many counties none are reported to have any employment whatever.[11]

The U.S. Secretary of the State, who was then in charge of the census, offered a defense of the returns. But since John C. Calhoun was serving in that post, his response degenerated into a sectional wrangle over whether the census had in fact exaggerated the number of free blacks in the North who were classified as "insane, idiots, deaf, dumb, or blind," as compared with the South.[12] The Joint House and Senate Committee on the Library ended up reporting that "in view of the manifest and palpable, not to say gross, errors of the late census, the committee feel bound to suggest to the Senate the necessity of some legislation, with a view to prevent similar errors and inaccuracies in the census to be taken in 1850."[13] This was one of the reasons Congress created a Department of the Interior in 1849, with the census as one of the new department's duties. Carroll D. Wright's official census history consequently concludes that the 1840 "results, although printed, have but little value."[14]

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[11]Edward Jarvis, William Brigham, and J. Wingate Thornton, *Memorial of the American Statistical Association*, Senate Document No. 5, 28th Cong., 2nd sess., (11 Dec 1844), p. 3. An abridged version of the memorial appears in U.S. Congress, House Select Committee on the Subject of Statistics, *Errors in the Sixth Census*, House Report No. 580, 28th Cong., 1st sess. (17 Jun 1844).

[12]U.S. Secretary of State, *Errors in the Sixth Census*, House Document No. 116, 28th Cong., 2nd sess. (12 Feb 1845).

[13]U.S. Congress, Joint Committee on the Library, *Report*, Senate Document No. 146, 28th Cong., 2nd sess. (27 Feb 1845), p 2.

[14]Carroll D. Wright, *The History and Growth of the United States Census* (Washington: Government Printing Office, 1900), p. 38, 40.

Unfortunately, I have been unable to find any good, independent data against which to test the 1840 Census. Gallman and Thomas J. Weiss have estimated the numbers of workers in various U.S. industries during the nineteenth century, but their totals are not broken down by state and are based on census returns anyway.[15] A later study by Weiss does correct the 1840 Census employment returns for each state but only provides the two broad categories of agricultural and non–agricultural workers.[16] Stanley Lebergott's pioneering research on wages also fails to address our distinct needs.[17] The exhaustive four–volume Aldrich Report from the 1893 Senate Finance Committee reports that dry–goods salesmen earned $1.00 per day in 1850. That puts the annual salary of at least some employed in commerce in the neighborhood of $350, well below both Seaman's averages of $1000 in major ports and $600 elsewhere.[18] Perhaps more telling is the fact that the 1840 Census gives occupations for 98,405 Louisianans. That number almost equals the state's entire free male population (including free blacks). So the 1840 Census has credited either slaves, children, or women with occupations. Ten years later, the 1850 Census was far more careful

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[15]Robert E. Gallman and Thomas J. Weiss, "The Service Industries in the Nineteenth Century," in National Bureau of Economic Research, *Production and Productivity in the Service Industries*, Studies in Income and Wealth, v. 34 (New York: Columbia University Press, 1969).

[16]Weiss, "U.S. Labor Force Estimates and Economic Growth, 1800–1860," in Robert E. Gallman and John Joseph Wallis, eds., *American Economic Growth and Standards of Living before the Civil War* (Chicago: University of Chicago Press, 1992).

[17]Stanley Lebergott, *Manpower in Economic Growth: The American Record since 1860* (New York: McGraw–Hill, 1964).

[18]U.S. Congress, Senate Committee on Finance, *Wholesale Prices, Wages, and Transportation*, Senate Report No. 1394, 52nd Cong., 2nd sess. (3 Mar 1893), v. 3, pp. 857–63.

about listing only the employments of free, adult males, with the result that total reported employment *fell* in Louisiana to 77,168, over a period during which the state's population *rose* by 47 percent.[19]

How much of the obvious overcounting of 1840 employment was concentrated within commerce in New Orleans is impossible to determine. My best guess, frankly, is not much. The subsequent 1850 Census lists many more employment categories than does the 1840 Census, and it is not always clear which of the 1850 jobs should be counted as commercial in the 1840 sense. My approximate but generous classification found 15,625 Louisianans employed in commerce (excluding navigation) statewide in 1850, as compared with the 1840 Census figure of 8,549.[20] The near doubling over the decade implies no significant over–reporting in the earlier year. The employment error in the 1840 Census is instead concentrated in agriculture, where the total statewide is 79,289—higher than for all employments put together in 1850. Nor should we be surprised that a high proportion of New Orleans' 1840 population was engaged in commerce. After all, the Crescent City could not boast the manufacturing of such

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[19][U.S.] Census Office, [1850 Census], *The Seventh Census of the United States, 1850* (Washington: Robert Armstrong, 1853), p. 481.

[20]The 1850 male workers I counted as commercial were apothecaries and druggists (205), auctioneers (37), bankers (25), bank officers (23), barkeepers (747), boarding–house keepers (123), booksellers and stationers (27), brokers (306), butchers (548), carriers (36), carters and draymen (1,076), cattle dealers (11), clerks (4,881), clothiers (19), coffee–house keepers (388), collectors (119), dealers (29), drivers (295), gatekeepers (5), horse dealers (17), insurance company officers (9), ice dealers (13), inn keepers (358), inspectors (31), lawyers (622), livery–stable keepers (49), marketmen (206), merchants (3,958), milkmen (208), music sellers (2), paper dealers (5), peddlers (292), produce dealers (39), rag collectors (60), railroad men (6), store keepers (188), teamsters (22), telegraph operators (3), traders (258), warehousemen (75), watchmen (228), wood dealers (62), and wool dealers (14). Some of these workers, particularly lawyers and possibly brokers, might more appropriately be classified in the state's service sector.

other American ports as Boston, New York, and Philadelphia. What I am most dubious about is Seaman's claim that 86 percent of those employed in commerce throughout Louisiana in 1840 earned an *average* income of $1000 per year.

Easterlin himself performed a set of revisions on the employment figures of the 1840 Census for every state.[21] Because he wanted to count all slave as well as free workers, he adjusted Louisiana's agricultural employment upward, from 79,289 to approximately 93,000. But he left unchanged the census total of approximately 18,000 Louisianans working in commerce, navigation, and manufacturing (although he appears to have made the minor error of classifying the 1,984 in navigation with manufacturing rather than with commodity distribution, as his own categorization would have required).[22] Easterlin's procedure would suggest that the census reports on Louisiana's commercial employment *already* counts at least some slaves, which is still another reason to be suspicious of an average annual income of $1000. Weiss confirms this conjecture in his own study of 1840 employment: "it appears that the census

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[21]Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," pp. 97–8, 126–32.

[22]For Louisiana statewide, the 1840 Census reports 79,289 employed in agriculture; 7,565 employed in manufacturing and trades; 1,944 employed in navigation of the oceans, canals, lakes, and rivers; 8,549 employed in commerce (excluding navigation); and 1,018 employed in the learned professions and as engineers (which Easterlin classified in the service sector). Easterlin estimated that statewide 93,000 were employed in agriculture and 18,000 outside agriculture. Of that 18,000, Easterlin listed 8,000 as involved in commodity distribution. That last number should have been 10,000, unless Easterlin deliberately meant to exclude those employed in navigation. But then he would be implicitly rejecting the underlying employment foundation for Seaman's estimates of value added from commerce.

attempted to count all free workers aged 10 and over and included some, but not all, slaves."[23]

To gauge how sensitive Louisiana's total output is to the average wage of those employed in commerce, let us assume that these 7,392 New Orleans residents earned not $1000 but only $600 annually. (We could, of course, get the same result by assuming that commerce employed only 60 percent as many at $1000, or with some intermediate combination of trimmed numbers and wages.) The state's total output then falls by nearly $3 million; Seaman's estimate of income drops to $103 per person, while Easterlin's estimate of income from commodity production and distribution drops to $105. Notice that both revisions are more in line with Gunderson's estimate. Louisiana is still one of the country's wealthiest states, falling behind only Rhode Island and Massachusetts. But the state's average income for non–agricultural workers is now $748 (or slightly higher if we reduce the number of workers in commerce rather than their average wage).[24]

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[23]Weiss, "U.S. Labor Force Estimates and Economic Growth, 1800–1860," p. 55. Weiss's estimates of Louisiana employment are broader in coverage and also somewhat higher than Easterlin's. Weiss puts the state's total 1840 workforce in all sectors at 175,200, those working in jobs covered by the census at 125,605, and those working in agriculture at 105,716. He arrived at the first number by applying labor–force participation rates from subsequent years to the state's 1840 population profile. He derived the second two numbers by correcting each county's employment returns for uncounted slaves and other obvious omissions, in light of the county's total population.

[24]Easterlin estimated that 18,058 non–agricultural workers in Louisiana earned an average income of $913. He derived that number from Seaman's combined estimates for Louisiana output from commerce ($13.7 million), manufacturing ($2.68 million), and mining ($.09 million), which totaled $16.47 million. Subtracting $2.957 million, the amount by which we have reduced total wages in commerce, and dividing by 18,058, lowers average income of non–agricultural workers to $748.

For the entire West South Central region, per capita income has now fallen from $104 to $97 (1840 prices), not counting the service sectors. Rendering this drop into an income relative comparable to those in Table 4.2 is a bit tricky because Easterlin did not provide absolute dollar amounts for each region's service sector income. But the task is simplified by the fact that our assumed reduction in Louisiana output is so small in comparison to the entire country's output that the impact on national income per capita is not noticeable. Therefore none of Easterlin's other regional relatives change. The income per capita of the South Central states alone, counting all three categories of output, declines from 144 percent of the United States average to 134 percent.[25] While still significantly higher than in the East South Central and North Central states, this downward revision is now about the same as the regional relative for the Northeast.

Without doubt, Louisiana had one of the highest per capita incomes in the Union in 1840, even counting its slaves as part of the population. It may be that Seaman and Easterlin are ultimately correct; Louisiana income was higher than in any other state outside of Rhode Island. But that conclusion hinges on a *single*, utterly undocumented conjecture about the average earnings of a good 5 percent of the state's workforce.[26] A reasonable downward adjustment not only drops

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[25]Easterlin's implicit relative for the West South Central states counting only commodity production and distribution is 160. The actual relative in Table 4.1, adding in the service sectors, is 144, or 90 percent of the implicit relative. Our assumption lowers the implicit relative to 149, 90 percent of which is 134. Easterlin's combined relative for the entire South, 76, would remain essentially unchanged.

[26]The 7,392 residents of New Orleans attributed with a $1000 annual income represent 7.5 percent of the 98,405 persons that the 1840 Census lists as employed within the state. Recall, moreover, that the total is biased upward, which means the New Orleans percentage is biased downward.

Louisiana's relative state ranking but, more important, eliminates an implausible

disparity in regional per capita output between the Southwest and Northeast.

TABLE B.1
Easterlin's Estimates of Income from Commodity Production
and Distribution by Region and State in 1840 (1840 Prices)

REGION/STATE	INCOME PER CAPITA		NON-AGRICUL-TURAL INCOME PER WORKER
	With Commerce	W/O Commerce	
U.S. Average	$65	$55	$437
North:	**69**	**57**	**442**
New England	83	70	465
Maine	57	46	390
New Hampshire	64	59	369
Vermont	65	61	338
Massachusetts	107	86	509
Rhode Island	118	102	494
Connecticut	91	81	479
Middle Atlantic	77	62	462
New York	80	62	458
New Jersey	83	73	458
Pennsylvania	75	63	470
Delaware	68	60	451
Maryland	63	51	464
E. North Central	46	39	348
Ohio	48	40	356
Indiana	41	36	301
Illinois	47	41	357
Michigan	44	39	352
Wisconsin	80	62	471

(continued)

TABLE B.1
(continued)

REGION/STATE	INCOME PER CAPITA		NON-AGRICULTURAL INCOME PER WORKER
	With Commerce	W/O Commerce	
W. North Central	51	42	372
Iowa	38	32	240
Missouri	53	44	391
South:	**58**	**52**	**410**
South Atlantic	55	50	343
Virginia	54	48	278
North Carolina	51	48	391
South Carolina	56	51	436
Georgia	57	52	483
Florida	69	55	610
E. South Central	55	51	380
Kentucky	52	47	357
Tennessee	47	43	314
Alabama	53	48	457
Mississippi	84	79	586
W. South Central	104	72	904
Arkansas	68	65	795
Louisiana	113	74	913

Source: Richard A. Easterlin, "Interregional Differences in Per Capita Income, Population, and Total Income, 1840–1950," in National Bureau of Economic Research, *Trends in the American Economy in the Nineteenth Century*, Studies in Income and Wealth, v. 24 (Princeton, NJ: Princeton University Press, 1960), pp. 97–98.

TABLE B.2
Gunderson's Estimates of Per Capita Income
in the Southern States in 1840 (1840 Prices)

STATE	INCOME PER CAPITA
South Atlantic	
Virginia	$67
North Carolina	64
South Carolina	65
Georgia	67
Florida	73
E. South Central	
Kentucky	64
Tennessee	57
Alabama	61
Mississippi	100
W. South Central	
Arkansas	81
Louisiana	105

Source: Gerald Gunderson, "Southern Ante-bellum Income Reconsidered," *Explorations in Economic History*, 10 (Winter 1973), 160.

TABLE B.3
Reconstruction of Seaman's Estimate of Louisiana Income from Commerce,
Navigation, and Transportation for 1840
(1840 Prices)

ITEM	VALUE (in thousands)	
Capital Invested		
Commercial Houses in Foreign Trade	$16,770	
Retail Dry Goods, Grocery,		
and Other Stores	14,301	
Lumber Yards and Trade	260	
Butchers, Packers, etc.	145	
Subtotal	$31,476	
10% Omissions	3,148	
Total	$34,623	
Annual Profits on Capital at 12.5%		$4,328
Men Employed		
Commerce: 7,392 in New Orleans at $1,000/year		7,392
Commerce: 1,157 elsewhere in state at $600/year		694
Navigating Oceans, Canals, Lakes		
and Rivers: 1,984 at $350/year		694
Butchers and Packers: 291 at $333.50/year		97
Income from Tolls on Railroads and Canals		500
GRAND TOTAL		$13,705

(continued)
TABLE B.3
(continued)

Details may not add to totals because of rounding.

Sources: [U.S.] Department of State, [1840 Census], *Sixth Census or Enumeration of the Inhabitants of the United States* (Washington: Blair and Rives, 1841), pp. 257, 261; [U.S.] Department of State, [1840 Census], *Compendium of the Enumeration of the Inhabitants and Statistics of the United States* (Washington: Thomas Allen, 1841), pp. 241; Ezra C. Seaman, *Essays on the Progress of Nations, in Civilization, Productive Industry, Wealth and Population . . . (New York: Charles Scribner, 1852), pp. 459, 461

Appendix C
Slave Prices and Runaways[1]

As we observed in chapter 2, the current price, *P*, of any slave with remaining life in years, *n*, tends to equal the discounted present value of the expected stream of future transfers, T_t^*, as in equation 2.2:

$$P = \sum_{t=1}^{n} \frac{T_t^*}{(1+i)^t}$$

(2.2)

This in turn was a compressed version of equation 2.1:

(2.1)
$$P = \frac{T_1^*}{(1+i)^1} + \frac{T_2^*}{(1+i)^2} + \cdots + \frac{T_{n-1}^*}{(1+i)^{n-1}} + \frac{T_n^*}{(1+i)^n}$$

Actually, these two equations are simplified slightly. They assume the annual interest rate, *i*, remains constant over time, when it can vary from year to year, and given antebellum price volatility, most likely did. So technically, *i* is only the expected yield (unadjusted for cumulative inflation or deflation) from holding the slave until its death, and may differ from nominal annual interest in any particular year. Equations 2.2 and 2.1 also treat all transfers to the slaveholder as being realized precisely once a year, in lump–sum payments, when they actually may have been spread out, at least partly, during the course of the year. Finally, a redundancy results from the fact T_t^* already incorporates the probability that the slave lives *t* additional years. The variable *n* could therefore be redefined as infinity, because the expected annual transfer is nonexistent from a slave whose

probability of living to the year in question is zero. Adjusting for these three minor simplifications, however, would complicate the formulas without adding substantially to the analysis.

One factor that obviously affected T_t^* is that a slave might run away, temporarily or permanently. Let us focus on only the probability of a permanent escape, p_t, in any given year and separate it out, defining T_{pt}^* as the expected annual transfer excluding only this factor. Because $(1 - p_t)$ is the probability that a slave does *not* permanently run off in any given year, we can rewrite equation 2.1 as equation C.1:

$$P = \frac{T_{p1}^*(1 - p_1)}{(1 + i)^1} + \frac{T_{p2}^*(1 - p_1)(1 - p_2)}{(1 + i)^2} +$$

(C.1)
$$\cdots + \frac{T_{pn}^*(1 - p_1)(1 - p_2)\cdots(1 - p_n)}{(1 + i)^n}$$

If we assume that the probability of permanent escape is equal in all years—that is, $p_1 = p_2 = p_3 = \cdots = p_t$—equation C.1 simplifies to C.2:

(C.2)
$$P = \frac{T_{p1}^*(1 - p)^1}{(1 + i)^1} + \frac{T_{p2}^*(1 - p)^2}{(1 + i)^2} + \cdots + \frac{T_{pn}^*(1 - p)^n}{(1 + i)^n}$$

This in turn can be shortened to equation C.3:

(C.3)
$$P = \sum_{t=1}^{n} T_{pt}^* \frac{(1 - p)^t}{(1 + i)^t}$$

This assumption about the probability remaining constant is highly unrealistic for slaves of all ages, but if we confine ourselves to male slaves within their prime, perhaps from about 15 to 45 years of age, the assumption becomes more defensible. Of course, p_t did decline steeply when such slaves become elderly, but

the income from these later years was already so heavily discounted at earlier ages that the assumption has a negligible effect.

So long as p is very small, the following relationship, well–established among mathematicians, is a good approximation:

(C.4) $$(1 - p) \approx 1/(1 + p)$$

Substituting C.4 into equation C.3:

$$P \approx \sum_{t=1}^{n} \frac{T_{pt}^*}{(1 + i)^t (1 + p)^t}$$

$$P \approx \sum_{t=1}^{n} \frac{T_{pt}^*}{\left[(1 + i)(1 + p)\right]^t}$$

(C.5) $$P \approx \sum_{t=1}^{n} \frac{T_{pt}^*}{(1 + i + p + ip)^t}$$

Since ip is the product of two fractions and very small, we may safely conclude that:

(C.6) $$P \approx \sum_{t=1}^{n} \frac{T_{pt}^*}{(1 + i + p)^t}$$

Equation C.6 gives us some feel for how changes in the annual probability of permanent escape affected a slave's price. They would have had very similar impacts to changes in the interest rate. But if we wish to make any usable numerical estimates, we must introduce two further assumptions: (1) the annual expected transfer to the slaveholder (so long as the slave does not run away) remains constant throughout the slave's remaining life, viz. $T_{p1}^* = T_{p2}^* = \cdots = T_{pn}^*$; and (2) the slave has an infinite life span, viz. $n = \infty$. The first assumption makes the second highly unrealistic for any individual slave, and we will later show how

it may be dropped. But dealing with a large population of slaves with similar probabilities of running away, if we think of the constant T_p^* as the average transfer for all slaves in the population, $\overline{T}_p$, then the population can have an infinite life span, as slaves reaching maturity replace those who die.

These assumptions permit us to recast equation C.3 as C.6:

(C.6) $$P = \overline{T}_p \sum_{t=1}^{\infty} \frac{(1-p)^t}{(1+i)^t}$$

In order to calculate how changes in p affect P, what we would like to determine is the expected value of P: $E(P)$.

(C.7) $$E(P) = E\left[\overline{T}_p \sum_{t=1}^{\infty} \frac{(1-p)^t}{(1+i)^t}\right]$$

We do know that if a slave permanently ran off in the first year, the owner received no future transfers. On the other hand, if the slave did not run off in the first year, the owner at the end of the year received $\overline{T}_p$, plus could expect to receive $E(P)$ in the future. Thus, we may write the following expression for the owner's expected income at the year's outset:[2]

(C.8) $$E(P) = (p \times 0) + (1-p)\left[\frac{\overline{T}_p + E(P)}{1+i}\right]$$

Now all that remains is to solve for $E(P)$.

$$E(P)(1+i) = (1-p)\left[\overline{T}_p + E(P)\right]$$

$$E(P)(1+i) - E(P)(1-p) = (1-p)\overline{T}_p$$

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[2] I owe this derivation entirely to Gregory Hively.

$$(C.9) \qquad E(P) = \frac{(1-p)\overline{T}_p}{i+p}$$

The expected value of a slave's price is, of course, the same as the average price, $\overline{P}$, of all slaves sharing the underlying attributes. Thus, equation C.9 becomes the one employed in Chapter 6:

$$(6.1) \qquad \overline{P} = \frac{(1-p)\overline{T}_p}{i+p}$$

Readers having some knowledge of finance will note that, if we set $p = 0$, equation 6.1 simply becomes the standard formula for the present value of a consol or perpetuity. This follows from our assumptions, which have essentially rendered the transfers from slaves to slaveholders into a constant and perpetual stream of future income, save for the probability of permanent escape.

We can now dispense with the assumption that slaves live forever. If a slave's expected life is n, during which all annual transfers equal $\overline{T}_p$, then its expected price will equal the present value of a constant, infinite income stream *minus* the present value of an equivalent constant, infinite income stream that only begins after the slave's death, as in equation C.10:

$$\overline{P} = \left[\frac{(1-p)\overline{T}_p}{i+p}\right] - \left[\frac{(1-p)\overline{T}_p}{i+p}\right]\left[\frac{1}{(1+i)^n}\right]$$

$$(C.10) \qquad \overline{P} = \left[\frac{(1-p)\overline{T}_p}{i+p}\right]\left[1 - \frac{1}{(1+i)^n}\right]$$

Formula C.10 changes the relationship between $\overline{P}$ and $\overline{T}_p$. A given annual transfer will yield a lower price as life span, n, declines. But our concern in Chapter 6 is to determine how changes in p affect $\overline{P}$, holding all other things

equal. We may therefore treat n as constant, set $i = 10$ percent, and make the following substitutions:

$$\text{let } X = \overline{T}_p \left[1 - \frac{1}{(1 + i)^n} \right], \text{ then}$$

(C.11)
$$\overline{P} = \left(\frac{1 - p}{.10 + p} \right) X$$

Notice that equation C.11 has the same form as 6.1. Thus, for our purposes, we will arrive at the same results whether employing equation 6.1, with its assumption of an infinite life span, or equation C.10, without that assumption.

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