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Abstract

In the U.S. South, a free labor market rapidly—although, in some cases, only nominally—replaced the plantation system of slave labor in the years following the American Civil War. Drawing on data comprising 75,099 transactions in the antebellum period, as well as 1,378 labor contracts in the postbellum era, I examine how the valuation of black labor was transformed between the 1830s and the years of emancipation. I trace the process of valuation through four markets for labor, moving from slave purchases and appraisals within the plantation economy, to the antebellum system of hiring out, to wage-setting for black labor under the auspices of the Freedmen's Bureau. Comparative analysis of labor pricing across these markets reveals systematic differences: slave markets placed price premiums on children and young women, and occupational skills emerged as the most salient influence in the pricing of wage labor. I conclude by theorizing how transvaluation of labor occurs when markets for unfree and free workers are governed by distinct institutional conditions.

Keywords

human capital, labor markets, slavery, statistical discrimination

Sociological studies of contemporary labor markets have developed nuanced depictions of the processes that affect the valuation of workers. Researchers have examined effects of sex segregation (Charles and Bradley 2009; Charles and Grusky 2004), human and social capital (Mouw 2003), organizational and occupational predictors of earnings (Weeden 2002), and racial wage inequality (Huffman and Cohen 2004). Increasingly, scholarship on labor markets takes a comparative lens, analyzing differences in the mechanisms of stratification across countries or eras. While earlier scholars confronted a certain degree of ahistoricism, historical research on labor markets in the United States has become prolific, especially in documenting the origins of black wage inequality. Mechanisms involving split labor markets (Bonacich 1975), residential segregation (Maloney 2005; Massey and Denton 1993), and path dependence (Branch 2011) have been posited as durable sources of disadvantage for African Americans.

An ongoing limitation in the existing body of sociological research on labor markets is

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its overarching emphasis on free wage labor—labor that is nominally at-will and free of coercion. Classical scholarship conceptualized the transition to wage labor as being fraught with conflict, uncertainty, and economic upheaval (Marx 1977; Polanyi 1944; Weber 1892), but the contemporary view of labor markets often takes the price mechanisms of wage labor for granted, rendering them as socially natural rather than a product of specific institutional circumstances (for critiques, see Stanley 1998; Steinfeld 2001; Tilly and Tilly 1998). As a consequence, students of social stratification cannot say whether the modern contours of inequality are unique to capitalist labor markets or whether they can also be identified within pre-capitalist systems.

This myopia is especially problematic for understanding the value placed on the labor of blacks, whose work experiences in the United States were dominated by the institutions of chattel slavery and, at early stages, indentured servitude for nearly 250 years. The problem of unfree labor, moreover, has implications well beyond the context of the African slave trade. Historical markets for *most* workers tended to involve unfree labor arrangements. Serfdom, indentured servitude, and various forms of long apprenticeship contracts were once the norm for much of the working population in Eurasia and the Americas. In Quaker Philadelphia, to take one example, roughly half of the labor force was unfree in 1750 (Wood 2009). Even today, an estimated 12 to 27 million individuals are trapped in slavery or forced labor around the globe (Bales 2012; International Labour Office 2005).

In this article, I bring the sociological study of labor markets into dialogue with quantitative historical research to understand how institutional conditions of free and unfree labor affect the valuation of work. Drawing on data and archival materials regarding the pricing of black labor between the Nat Turner revolt and the era of Radical Reconstruction, I address two empirical questions about labor markets. First, to what extent does the logic of investment in occupational skills, often emphasized as a central driver of stratification in modern wage labor markets, also apply to markets for unfree labor? Second, are processes of statistical discrimination—particularly by age and gender—similar for labor markets that involve wage workers, unregulated hires, and slaves? Despite abundant debate among economic historians regarding the degree of continuity between slave and capitalist labor markets in the U.S. South (e.g., Fogel 2003; Smith 1998), no study has mustered a direct and systematic comparison of pricing in the various antebellum markets for slaves and the market for wage labor that emerged immediately after the Civil War. In more theoretical terms, addressing these questions allows us to revisit the conceptual divisions established by classical scholars, such as Marx and Weber, between labor arrangements in slave society and under capitalism (see Nippel 2005).

Analyzing archival sources regarding subjective perceptions of the valuation of black labor, as well as roughly 80,000 transactions, this study traces differences in price mechanisms across markets for free and unfree labor. Rather than conceptualize these markets in dichotomous terms, the analysis identifies two underlying dimensions that may influence the valuation process: (1) whether employment relationships involve short-term transactions or whether they transfer ownership over labor in perpetuity; and (2) whether (purportedly unbiased) third parties monitor transaction terms and subsequent labor conditions. I argue that some prototypical features of modern, free labor markets (e.g., investment in occupational skills) fully affect the valuation of labor only under conditions of third-party monitoring and short-term hiring, while other, pre-modern features (e.g., exploitation of children and female sexuality) tend to affect the valuation of labor when these institutional conditions are absent. The study thereby seeks to broaden our understanding of valuation in labor markets, placing the operation of price mechanisms in a comparative context.

		Third-Party Monitoring and Evaluation	
		Little or None	*Considerable*
Duration of Ownership of Labor Power	*Perpetual*	**Slave Purchases**, Servile Marriage, Child Servitude, Sexual Slavery	**Judicial Appraisals of Unfree Labor**, Penal Labor, Debt Bondage, Serfdom
	Short-Term/At-Will	**Unregulated Hire Market**, Day Labor, Illicit Labor	**Regulated Wage Labor**

Figure 1. A Typology of Labor Markets
Note: Entries in boldface correspond to those analyzed empirically in this article; other entries are intended to be illustrative and may appear in different cells depending on the specific legal frameworks and norms of the society being analyzed.

A COMPARATIVE THEORY OF LABOR MARKETS

An important insight from the sociological turn in the study of economic behavior is that labor markets are not unitary entities (Tilly and Tilly 1998). A simple typology of these markets can be constructed based on two underlying dimensions (see Figure 1). One dimension considers whether the buyer in a labor transaction will exercise perpetual ownership over workers or whether the transfer of labor power is short term, involving an employment relationship that is either terminable at-will or contractually delimited. The other dimension considers whether third parties are involved in monitoring the price and conditions under which the transfer of labor power occurs.[1] Cross-tabulating these dimensions, we obtain four ideal-typical labor markets: (1) the unregulated (or weakly regulated) market for unfree labor; (2) the regulated market for unfree labor, conducted within a legal-rational context by third parties such as lawyers, creditors, actuaries, or the state; (3) the unregulated hire market for labor; and (4) the regulated market for wage workers. The last market interface corresponds most closely to what Weber (1968:127–28) termed "formally 'free' labor," wherein the exchange of labor is subject to a mutual contractual relationship, whether explicit or implied. The contractual nature of the relationship (and its oversight by third parties) is critical, because it differentiates this market from "free and rightless" hired labor (3), which can be found in a variety of historical circumstances, ranging from the British peasantry removed from their land by the enclosure movement (Marx 1977:896) to contemporary day laborers (Valenzuela 2003).

Considering the importance of institutionalized monitoring to free labor, Weber (1968:128) himself recognized that contracts may "be substantively regulated in various ways through a conventional or legal order governing the conditions of labor." Historically, both governmental and nongovernmental agents have acted as third parties to monitor labor contracts and pricing. In the antebellum South, third parties also established regulated appraisals for unfree labor when slaves were insured, when a plantation owner passed away, or when legal proceedings required an independent assessment. Valuation in the slave insurance market, for instance, emerged during the 1830s and was concentrated in urban centers of the Upper South (Murphy 2010). Underwriting was limited to masters who were known not to mistreat their slaves, owing to the problem of moral hazard. To reduce the probability of malfeasance, insurance firms relied on local agents to monitor slave owners' character and the value of their insured chattel. In judicial sales of slaves, on the other hand, appraisals "were generally

made by other planters, that is, by men familiar with market conditions and current price levels" (Coclanis 1982:535).[2] The presence of such third parties differentiated the institutional conditions of appraisals and underwriting from slave purchases, which relied largely on slave buyers' personal judgments.

More generally, the dimensions in Figure 1 suggest two trade-offs that have historically affected a diverse set of labor markets from the perspective of buyers and employers. With respect to regulation, exploitation of labor—especially in its baser forms—tended to occur most often when third parties were unavailable to monitor terms of exchange and treatment of workers. Yet these third parties may also have been essential to credentialing workers and managing uncertainty regarding labor availability and replacement. With respect to the time horizon of employment, investment in specific skills and domination of workers occurred most often when employers were able to exercise perpetual control over their workforce. Yet perpetual transfers of labor power also carried the burden of large sunk costs and considerable risk of laborer mortality or disability in the long run (Weber 1968). In developing a comparative theory of labor markets, I now turn to the core question of how these institutional dimensions and trade-offs affect the valuation of labor.

Investment in Occupational Skills

For analyses of wage labor, a common explanation of variation in earnings involves the human capital that workers exhibit, as evidenced in their stock of knowledge and occupational skills (Becker 1964; Mincer 1958). Specifically, the process of human capital accumulation under free labor is typified by an opportunity cost incurred by a worker (in the interest of acquiring additional education, experience, or training) with the goal of generating future rents that justify that opportunity cost.[3] Under the logic of human capital accumulation, education or training should be undertaken early in the life course so that their costs may be amortized over an extended period of time.

In an influential economic interpretation, this idea of investment in human capital applies equally well to markets for slave labor—after all, "nobody doubts that human beings were a form of capital in slave society" (Fogel and Engerman 1974:233). The fundamental difference between slave and free society, according to this account, lies not in the existence of human capital, "but on who may hold title to such property rights" (Fogel and Engerman 1974:233), whether employers or workers themselves. When human capital is assessed in broad terms, including slaves' health and reproductive capacity, the ideology of slave owners clearly highlights the importance of investments in this form of capital (Ruef and Harness 2009). But when the concept of human capital is operationalized more narrowly, as an investment in occupational skills or education, it is not at all clear that the logic of human capital theory was widespread in slave societies.

One problem concerns the typical duration of slave ownership. In the antebellum South, the moral ideology of the planter class extolled the paternalism and interpersonal relationships that accompanied the region's peculiar institution of durable bondage (Fox-Genovese and Genovese 2005). If owners in slave societies viewed their chattel as property to be held over their lifetime, then rents for investments in skills would seldom be realized in the open market for slave labor. In Weber's (1968) eyes, the low turnover in slaves was sufficient to rule out an equation between chattel slaves and capital.

A related problem in invoking the language of human capital is that durable bondage meant the skills acquired by slaves were often quite specific to particular work arrangements and masters. In the American South, this skill-specificity was especially apparent among domestic slaves, whose deference behaviors and relationships to owners would not necessarily extend to other employers or to conditions following emancipation (Ruef and Fletcher 2003). Many masters offered specialized titles and training as a reward for a slave's talent or loyalty, but this was a means to maintain control, not to develop

human capital (Fogel and Engerman 1974; Genovese 1974).[4] Insofar as long-term slave holding is entrenched in a society, relatively little variation in the value of labor can be explained by titles that typically serve as a proxy for occupational skill.

The absence of third-party monitoring and evaluation likewise generates problems for investments in occupational skill. For skills to generate anticipated rents, employers must have some assurance that workers possess the skills they claim and skilled labor must have some assurance that unskilled workers will not move into their occupational jurisdictions. Without these structural conditions—typically called credentialing (Collins 1979) and occupational closure (Weeden 2002), respectively—material returns to skill investments tend to be diluted.

Under chattel slavery, credentialing and closure were typically weak because occupational training was an idiosyncratic undertaking, remaining largely in the hands of individual slave owners. Owing to high levels of slave mortality and an overwhelming desire among employers to minimize turnover costs (Hanes 1996), there was little effort to create institutional barriers regulating movement from one slave occupation to another. To a slightly lesser extent, this generalization also applied to hire markets, which represented a step toward freedom insofar as unfree laborers were allowed to choose their own employers, negotiate work conditions, and retain some of their earnings (see Eaton 1960; Nash and Flesher 2005). While skilled labor was often sought after—especially in urban markets for hired slaves—it remained difficult for employers to verify workers' capabilities ex ante, given the presence of opportunistic intermediaries, such as slave owners and brokers. In the American South, the potential for ethnic competition with free white labor may also have led some slaves to downplay their credentials in the hire market (Bonacich 1975), contributing to an attenuated effect of human capital.

On the whole, these arguments suggest that (1) investment in occupational skills will primarily affect labor valuation in markets that exhibit the joint conditions of regulation by independent third parties (who are in a position to evaluate and protect claims of skill) and short-term control of labor power (which subjects returns on human capital to regular market exchange and removes investment decisions from paternalistic authority).

Statistical Discrimination

The logic of human capital relies on differentiation of ability among workers in a labor market, but the logic of *statistical discrimination* relies on differentiation of ascriptive characteristics (e.g., age, sex, and race) that are perceived to be correlated with ability. In the context of free labor markets, the use of statistical discrimination is sometimes justified on the basis of predictions regarding worker productivity that tend to hold, on average, for a readily observed trait (Aigner and Cain 1977; Phelps 1972). According to economic theory, employers rely on stereotyping when labor markets are characterized by high levels of uncertainty regarding worker skills and motivations, which are typically unobserved.

Like human capital theory, the theory of statistical discrimination has been applied readily—if implicitly—to markets that deviate from the institutional conditions of formally free labor. As part of their evidence for the capitalist character of slavery in the antebellum South, Fogel and Engerman (1974) highlight age-varying slave prices, which peaked for male field hands in their 20s and fell precipitously for younger and older slaves. According to their calculations, this age–price profile was correlated (on average) with slaves' earnings over their lifecycle. Moreover, Fogel and Engerman assert that female slaves' lower price after the teen years was attributable to their lower annual earnings. Rational slave buyers could thus be said to have discriminated statistically by age, sex, and physiology, using observed characteristics as proxies for the agricultural productivity of field labor.

Although there may be some temptation to apply statistical discrimination theory equally

to markets for free and unfree labor, the historical record suggests some important differences. One key distinction concerns the role of uncertainty in these transactions. In purchase markets for slaves, buyers can exercise perpetual ownership over labor power. Due to this time horizon of ownership, inferences regarding slaves' ability assume increased importance. Participants in short-term or at-will contracts tend to have few sunk costs in the employment relationship (at least initially), but slave buyers place a larger investment at risk. As Weber (1968:162–63) noted, formal rationality in the management of slaves was particularly difficult to achieve, owing to the high level of sunk costs, the exposure of slave labor to "non-economic influences," and the resulting fluctuations in slave valuation. Consequently, if uncertainty is a precondition to statistical discrimination, then such discrimination is likely to be more pronounced in markets for unfree than for free labor.

Another distinction between free and slave labor concerns statistical discrimination against female workers in particular. Almost since their inception, neoclassical theories have emphasized the disruptive role of childrearing and women's resulting tendency, under free labor arrangements, to choose lines of work that maximize their earnings with this discontinuity in mind (for a review and critique, see England 1984). In the context of slavery, historians point to an opposite possibility—that women of childbearing age may be valued especially highly, insofar as slaveholders have a pecuniary interest in slave breeding (Sutch 1975). Fogel and Engerman dispute whether such statistical discrimination is built directly into the price mechanisms of the slave labor market, and this idea continues to provoke debate. What seems clear, however, is that the sexual stereotyping invoked in discussions of slave markets is fundamentally different than that in discussions of free markets, with the extent of ownership over labor (literally, including reproduction) representing a key moderating variable.

The time horizon of labor ownership affects statistical discrimination for other demographic groups. In modern free labor markets, child labor is either avoided altogether (due to regulatory oversight by third parties) or subject to very low wages. As Zelizer (1981:1038) notes, the cultural shift in valuation of middle-class children, from "object of utility to object of sentiment," was already complete by the mid-nineteenth century, rendering this population "economically worthless." But in slave markets, price discounting at young ages was far more limited. The high valuation of child labor was premised on the future flow of rents expected from adolescent slaves, while the comparable valuation under free labor conditions was largely driven by present productivity. Plantations' internal labor markets likewise influenced the valuation of child labor, insofar as planters sought to recruit promising youth for entry-level tasks and then promote the most loyal of these slaves (see Fogel 1989).

The regulatory dimension of labor markets may also affect the logic of statistical discrimination. Where third-party oversight of labor markets is absent, there is an additional risk that employers will illegitimately exploit child or female labor. Under antebellum chattel slavery, for example, the sexual exploitation of women often went beyond slave breeding, as masters had intercourse with their female chattel and forced them to bear their children. These acts were formally illegitimate, owing to anti-miscegenation sentiments and laws in many Southern states.[5] When hidden from public view, however, such acts of exploitation or intimacy were often tolerated and only infrequently subject to prosecution. Similarly, public norms discouraged overworking young slaves (who were to be given light tasks). But the practical effects of these prohibitions on child labor are subject to question (Tadman 1996). Insofar as the capacity for exploitation is built into labor market pricing, we expect that weakly regulated markets for children and young women will display larger price premiums than those found in markets with third-party oversight.

These arguments regarding the operation of statistical discrimination across labor markets suggest three additional propositions: (2) price discrimination by sex and age is more pronounced, on average, in markets for unfree than for free labor; (3) the value placed on child labor and women of childbearing age is greater in markets for unfree labor; and (4) labor markets with limited third-party oversight likewise exhibit price premiums for child labor and young women.

HISTORICAL METHODS

Setting and Data

In the United States, the formal emancipation of four million slaves in December of 1865 offers a unique historical opportunity to consider effects of free labor market conditions on the valuation of African American labor. Earlier that year, Congress established the Bureau of Refugees, Freedmen, and Abandoned Lands (hereafter, Freedmen's Bureau) to guide former bondsmen and women on their path from slavery to freedom. The Bureau existed from 1865 until 1872, issuing rations and other necessities, creating schools, registering marriages, and promoting the general welfare of freedmen (Cimbala 1997; DuBois 1901). Foremost among the Bureau commissioners' activities was the need "to introduce practicable systems of compensated labor" (quote in DuBois 1901:358), securing the right of former slaves to choose their employers and providing templates for labor contracts.

The Freedmen's Bureau attempted to institute labor market conditions that approximate the ideal-type of regulated wage labor, as shown in Figure 1. Labor contracts formed under the Bureau's direction were generally of short duration. Records from the Washington, DC, and northern Virginia branches (analyzed below) show a mean contract length of 10 months. Employment arrangements were not at-will and some freedmen feared the contracts would bring a new form of enslavement (Stanley 1998). Nevertheless, archival evidence suggests some flexibility in contract terms. For instance, Page and Tena Lomax initially signed a contract on September 28th of 1865 with James Bryan of Dorchester County, Maryland, agreeing to a three-month term of service with a possibility of a one-year extension thereafter. On December 16th of the same year, the Freedmen's Bureau received a letter from Bryan's son, noting that the Lomax were leaving after the "short trial in consequence of Tiny [*sic*] Lomax's sickness or rather her melancholy on account of separation from her children" (Freedmen's Bureau 1865–70:108). Although instances of effective slavery persisted and the meaning of free labor continued to evolve (Goldberg 2006; Steinfeld 2001), the Bureau's insistence on oversight by local superintendents (who witnessed contracts between freedmen and employers) tended to produce the institutional conditions of regulated wage labor.

To analyze the valuation of labor under the auspices of the Freedmen's Bureau, I identified and coded all labor contracts documented at the Bureau's branch offices in Washington, DC, and Alexandria, VA, between August, 1865 and March, 1867. Despite the urban location of the offices themselves, the contracts covered a large variety of (predominately rural) labor agreements with employers in Virginia, Maryland, and a dozen other states. Only 18 contracts (less than 2 percent of the sample) referenced employment relations within the District of Columbia. Nearly 40 percent of contracts pertained to labor arrangements outside the Potomac and Chesapeake region. In total, the archive includes labor contracts with 1,378 individuals, covering such variables as terms of service, attributes of freedmen (name, age, sex, occupation, and family composition), names and locations of employers, and monthly wages (Freedmen's Bureau 1865–1870, 1865–1872).

I contrast the postbellum pricing of wage labor with three other labor markets. The antebellum hiring market for slaves in the U.S. South tended to feature short-term contracts and a lack of oversight by independent third parties, placing it in the lower left-hand

cell of Figure 1. Between 1831 and 1865, the average term of hire for slaves was approximately 11 months, almost identical to that observed in the wage labor market subsequently regulated by the Freedmen's Bureau. Most antebellum towns and districts, however, were not in a position to exercise regulatory supervision over the hiring process.[6] The sample analyzed here, drawn from Fogel and Engerman's (2006a) records, covers 17,158 transactions with wage data across eight Southern states (Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia).

The antebellum market for slaves was divided into sales and judicial appraisals, corresponding to the upper left- and right-hand cells of Figure 1, respectively. While the active domestic trade in slaves meant that ownership was not, in fact, perpetual, the rate of turnover among slaves was much lower than that of blacks hired on contract.[7] Probate records provide data on the antebellum market for slaves, covering price information for 6,709 slave sales and 51,232 appraisals between 1831 and 1865 in eight Southern states (Fogel and Engerman 2006b).

For all three antebellum labor markets, I begin my analysis in 1831, ignoring transactions from the colonial period and the early American republic.[8] This helps ensure comparability in macroeconomic conditions along several dimensions. During this period, the Southern economy was tethered overwhelmingly to cotton as a commodity crop and export, as it was in the years after the Civil War. Following the cessation of the transatlantic slave trade in 1808, Southerners had no ability to import new slaves, which meant that pricing was strongly influenced by the domestic supply and demography of enslaved black labor. Finally, the Nat Turner revolt in 1831 stirred white fears of slave rebellion and limited the autonomy that Southern slaveholders were willing to give to blacks. These conditions of interracial distrust and control persisted into the postbellum era.

Because a sociological theory of labor markets also hinges on employers' *perceptions*, I complemented price indicators with archival sources documenting the changing understandings of slaveholders, slave traders, federal authorities, and employers of wage workers in regard to black labor. I consulted three documentary sources extensively: Breeden's (1980) sample of antebellum publications concerning slave management; records on the genesis of free labor during the Civil War collected by Berlin and colleagues (1993); and the Freedmen's Bureau's correspondence immediately after the war (Hahn et al. 2008). Following a multimethod approach to triangulation (Denzin 2009), I consulted archival materials on an iterative basis, in conjunction with the quantitative analyses, to examine whether documentary evidence would corroborate statistical findings and whether it would suggest changes to how I should model labor market valuations statistically.

Statistical Methodology

To assess the valuation of labor across institutional conditions, I estimate hedonic models of labor pricing. I control for variation in local market conditions (demand and supply) and inflation by using fixed-effects for the county and year in which each transaction occurred. Specifically, the models include a dummy variable for each relevant year between 1831 and 1867 and a dummy variable for each county, thereby focusing attention on the variation of labor prices by worker characteristics *within* years and *within* counties.[9]

Substantively, the resulting regression models represent the (logged) price of labor (P_{it}) as a function of workers' ascribed characteristics (vector $\mathbf{X_1}$), occupational skills ($\mathbf{X_2}$), location (i), and year (t):

$$\ln P_{it} = \alpha_{it} + \beta_t + \delta' \boldsymbol{X}_1 + \gamma' \boldsymbol{X}_2 + \varepsilon \qquad (1)$$

where $\mathbf{X_1}$ includes each worker's age, sex, perceived health issues or disabilities (if any), and any relevant interaction terms. Standard errors in the model are clustered by owner/employer to account for unobserved buyer-side characteristics that may affect a number of transactions.

My methodology accounts for four other complications in analyzing these data. One concern is that the most detailed archive of wage labor contracts after the Civil War comes from the Upper South, a region that may have witnessed an earlier and more pervasive impact of free labor ideology than the Lower South. For comparison, I collected a small sample of 222 Freedmen's Bureau contracts for black wage workers employed in Louisiana, Arkansas, and Mississippi between 1865 and 1868.[10] Employers in these states displayed a conservative attitude toward wage laborers' rights. In Louisiana, 13 parishes were exempted from the emancipation proclamation of 1863, as federal authorities sought the support of sugar plantation owners by maintaining an emphasis on centralized plantation routine (Rodrigue 1999). In Mississippi, the chaplain of a black regiment reported a widespread view among planters that former slaves who remained on plantations would need to work "as they always had done," a phrase that "was designed to cover both the matters of discipline and compensation" (Hahn et al. 2008:111). From the perspective of employers in these states, wage laborers' conditions would exhibit little change from those of antebellum slaves.

A second methodological complication is the relatively frequent problem of missing or imprecise data on workers' ages in all of the historical archives. Age data are missing entirely for over 25 percent of cases in the sample of slave sales and appraisals, 69 percent of cases in the Freedmen's Bureau sample of wage labor contracts, and 86 percent of cases in the sample of slave hires. To retain a maximum number of possible cases, I employed multiple imputation for all analyses, drawing 20 imputations to construct each dataset (Royston 2004).[11]

A third complication is that the mechanism of statistical discrimination applies only when prospective buyers of labor power use stereotypes regarding observed worker characteristics (e.g., age and gender) to infer *average* productivity or fecundity, but not when buyers have concrete evidence regarding a specific worker's skills or fertility. Probate records usually did not identify whether a buyer was from the same locale as a slave, which might give the buyer information on worker skills not available at the point-of-sale, nor did records systematically identify how many children were being sold with female slaves. These data, however, are available in notarized bills of sale for New Orleans, the largest Southern slave market (Johnson 1999). Consequently, I supplemented my analyses of transactions involving unfree labor with a 2.5 to 5 percent random sample of all transactions conducted in New Orleans between 1831 and 1862, comprising 2,709 cases with data on labor pricing (Fogel and Engerman 2008).[12]

A final, and more involved, complication concerns selection biases that may affect transactions for either free or slave labor. It is quite plausible that slaves who were allowed to hire themselves out during the antebellum era were systematically different than those forced to labor on owners' plantations or households. Similarly, there is no reason to believe that wage workers sought by employers after the Civil War were a random subset of former slaves. Indeed, descriptive statistics of the four samples suggest variation in demographics and skills across labor markets (see Table 1). The proportion of female workers declines from slave labor, to slave hires, to wage labor, and the age distribution of workers becomes less dispersed. Archival records suggest that employers paid more attention to occupational skills, even if only for symbolic purposes, under the postbellum regime of free wage labor than during any of the antebellum markets for slave labor.

Sample differences are problematic insofar as the theory of valuation sketched earlier maintains that institutional contexts yield distinct price mechanisms *even when the workers themselves are identical*. Ideally, we would analyze matched samples of workers, involving the same individuals across all four labor markets. Such logical matching is possible for 701 transactions in the probate records, where slaves were subject to both appraisal by a third party and sale to a slave owner. To complete the construction of the other samples, I used propensity score matching (Rosenbaum and Rubin 1985) to create samples of slave hires

Table 1. Means for Worker and Transaction Characteristics across Four Labor Markets

	Slave Purchases (1831 to 1865)	Slave Appraisals (1831 to 1865)	Slave Hires (1831 to 1865)	Wage Labor (1865 to 1867)
Workers				
Age (1 to 10 years)[a]	.08	.22	.09	.02
Age (11 to 20 years)	.35	.25	.43	.31
Age (21 to 30 years)	.25	.22	.21	.54
Age (31 to 40 years)	.14	.14	.10	.10
Age (41+ years)	.18	.17	.18	.03
Female	.39	.42	.36	.18
Skilled Labor[b]	.02	.03	> .01	.22
Health Issue/Disability	.03	.02	> .01	
Transactions				
Price/Wage Rate[c]	$638.21	$559.97	$54.99	$117.55
Period of Hire (months)			11.40	10.38
Number of Cases	6,709	51,232	17,158	1,378

[a]Proportions are only listed for workers with precise ages in the archival records.
[b]All workers with occupational skills that do not involve field work or common labor are defined as skilled.
[c]Nominal prices (in dollars) are listed for slave purchases and appraisals; nominal rates (in dollars per year) are listed for slave hires and wage labor.

and wage laborers that are matched statistically to this subset of 701 probate records. The resulting data exhibit several useful features in terms of sample composition: workers evaluated in the slave appraisal market are identical to those evaluated in the purchase market; workers evaluated in the wage labor market are statistically indistinguishable (by age, gender, or occupational skill) from those purchased or appraised; and workers in the slave hire market, while statistically distinguishable on age, are far more similar to those in the slave labor market than they were in the original sample (see the Appendix). The quantitative findings reported below include results based on both the larger set of raw data on labor transactions and smaller datasets involving matched subsamples.

FINDINGS

Archival Evidence

For the antebellum period, extensive archival evidence on slaveholder valuations can be found in public statements regarding criteria used to judge black labor, as well as slave traders' letters, circulars, and price tables. Tyre Glen, a plantation owner and slave trader living near the North Carolina–Virginia border, developed a price table in the early 1850s that tied valuation directly to the age of male slaves. For instance, his price scale placed a value of $300 on an 8-year-old slave and exactly three times that amount on a 20-year-old field hand (Glen 1820–1889). Another trader, the Virginian Richard Reid, used a price table that distinguished both age and sex. Late in the life course, when slaves were 50 years or older, Reid's scale heavily discounted the labor of bondswomen, placing their value at half that of their male counterparts. On the other hand, young slave girls were valued closely to boys of the same age (e.g., $200 for a girl between 8 and 11 years and $250 for a comparable boy) (Reid 1770–1910). Among children, these criteria were often supplemented by physiological characteristics, such as weight and height.

Archival records provide strong support for the intuition that planters exhibited "an almost universal enthusiasm for vigorous natural

increase (and hence capital growth)" and that slaves were priced accordingly (Tadman 1996:122). In 1857, a planter-physician in Georgia wrote that slave owners must pay particular attention to the "procreative relationship" of female slaves, "for the raising [of] a family of young negroes on a plantation is an important item of interest in our capital" (quote in Breeden 1980:195). The care and value placed on childbearing women was a peculiar concern in slave management. In an essay titled "The Policy of the Southern Planter," another slave owner emphasized that "to the breeding women, we give extra clothing, besides favoring them as much as possible in other respects" (Breeden 1980:146). Among traders and planters, demand for such "breeding women" (i.e., young women who were thought to be fertile) was especially high in the slave labor market (Tadman 1996:143).

Attention to skilled trades, on the other hand, was limited in antebellum planters' and slave traders' correspondence. Commenting on a prize-winning essay on slave management, Benjamin Griffin noted that the author "omitted any discussion of the management best adapted to develop manufacturing or mechanical skill in the slave, as there is a general and very proper disposition among slave holders to leave the trades and arts to the white population" (Breeden 1980:26–27). Tyre Glen's price table does not refer to skills at all. Richard Reid's papers do identify black mechanics as worthy of especially high valuations but restrict attention to the occupational skills of this group. Slaves' education was generally thought to be a matter of religious—rather than vocational—instruction, and it typically proceeded on the basis of verbal transmission, thereby avoiding the thorny topic of slave literacy (Breeden 1980).

During the Civil War, a profound shift in criteria used to value black labor was already evident in Union-occupied territory. The District of Columbia, which abolished slavery in April of 1862, represented one of the earliest instances of emancipation in the Upper South.[13] Many of the able-bodied freedmen were soon employed as military laborers or in government facilities. In an extensive discourse on wages and the possibility of taxation, Lieutenant Colonel Elias Greene, the Chief Quartermaster for the Department of Washington, revealed a logic of compensation that was quite distinct from that of the antebellum period. Greene wrote that "a vast majority of the colored men engaged in the public service [in D.C.] are employed as teamsters, and laborers, and receive the same pay, as white men similarly employed" (Berlin et al. 1993:315). Whether or not Greene "made any distinction [between black and white workers] on his rolls," the striking feature of his letter is that he inferred wages based exclusively on occupational skills, rather than black laborers' age or physical traits. He wrote that farm laborers tended to receive $10 to $15 per month; waiters were compensated at $16 per month; barbers, stevedores, and quarrymen averaged from $20 to $30 per month; and a small class of federally employed artisans (e.g., blacksmiths and wheelwrights) received between $35 and $60 per month. Along with this survey of occupationally defined wages, Greene's letter emphasized human capital accumulation. Discussing the development of Freedman's Village, an enclave of emancipated slaves located on Robert E. Lee's former plantation in Arlington, Greene highlights the construction of workshops, "where the women and children [may] . . . be taught such occupations, as will fit them for a career of independence, and usefulness, when thrown upon their own resources" (Berlin et al. 1993:318).[14] During the winter, men could also be taught the "mechanical occupations," comprising the highly skilled artisanal trades of the day. Greene concludes that he would like "to see the same course [of action] pursued throughout the country" (Berlin et al. 1993:320).

This last point raises the question as to whether the logic of human capital accumulation was limited to a small number of war-time experiments in free wage labor, such as that showcased by the Freedman's Village, or if it spread more widely in the postbellum South.[15] Even more so than the early experiments, the

Freedmen's Bureau maintained a strong emphasis on human capital as an investment. Gilbert Eberhart, the Georgia Bureau's first superintendent of education, insisted that education for emancipated blacks should *not* be free of charge, calling instead for black communities to provide resources to support their schools and, thereby, asking them to incur an opportunity cost (Cimbala 1997). To a surprising extent, this logic was accepted by former bondsmen. In September of 1865, a subcommissioner in Mississippi reported a discussion with an older black worker who "wished to educate his children, thought himself able to pay one dollar per month for school . . . and was anxious to have school started" (Hahn et al. 2008:551). Among Bureau agents, such investments were thought essential to ensure that emancipated blacks could be self-supporting. These precepts also reflected the importance of what the Reverend Edward Kirk (1868), president of the American Missionary Association, referred to as a duty of the free labor ideology, and freedpeople themselves, to produce a group of educated laborers among emancipated African Americans.

Wage guidelines proposed by Bureau agents consistently signaled a differentiation of labor value by skills and capabilities. Labor regulations issued in the Gulf States in July of 1865 dictated a specific premium for skilled trades, stating that "mechanics, engineers and foremen will always receive not less than $5 per month in addition to the first class rates" (Hahn et al. 2008:334). A circular issued in Georgia around the same time proposed an extensive classification of wage workers by agricultural and domestic skills, with monthly compensation specified for each class (Hahn et al. 2008). Subsequently, commissioners like Georgia's Davis Tillson vacillated between wage guidelines based on worker skills and a reliance on wage setting in the open market (Cimbala 1997). Adoption of federally regulated wages was ultimately opposed at the top by General Oliver Otis Howard, the Bureau's head, who did "not deem it expedient to fix upon a general system of wages" (Hahn et al. 2008:360). While Howard ostensibly left the returns on occupational skill to the market, the idea of distinguishing wages by skill had become firmly entrenched in the minds of many federal agents and freedmen.

The Freedmen's Bureau's emphasis on ideals such as individualism, achievement, and equality (Cimbala 1997) weakened the older practice of ranking black labor largely according to demographic characteristics. General Howard worried about any effort to set wages for the "infinite gradation from the able-bodied man to the little child" (Hahn et al. 2008:360). Although the black Southern work force would continue to encompass women and children as well as adult men, the criteria used to attribute value to different subgroups had shifted in subtle ways. Officially, the Freedmen's Bureau encouraged employment outside the home for both men and women, as part of its broader war on dependency. In practice, however, assumptions regarding domesticity and masculinity pervaded agents' judgments. Freedwomen were far more likely than freedmen to receive rations and other relief from the Bureau, and able-bodied women with young children were far less likely to receive work (Farmer 1999). The Bureau's leadership also denounced "an apprentice system for children without consent of parent," an arrangement that would "gravitate to slavery in reality if not in name" (Hahn et al. 2008:360–61). Child labor did not disappear with emancipation, but its role and value in the postbellum labor market was greatly muted compared to the antebellum market for young slaves.

Quantitative Results

Tables 2 and 3 present regression analyses of labor pricing for black workers across the four markets: slave purchases and appraisals (Table 2), antebellum hiring of slave labor, and postbellum hiring of wage labor (Table 3). For each market, models are nested such that the second model adds covariates that reflect broad categories of occupational skill (see Table A3 in the Appendix), and a third

Table 2. Regression Models for (Logged) Prices of Slaves in the U.S. South, 1831 to 1865

	Purchase Prices			Appraised Prices		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Demographics and Health						
Age (1 to 10 years)[a]	.793***	.804***	.806***	−.042	−.020	−.022
	(.113)	(.113)	(.114)	(.031)	(.031)	(.031)
Age (11 to 20 years)	.810***	.821***	.824***	.564***	.584***	.582***
	(.090)	(.090)	(.090)	(.026)	(.027)	(.027)
Age (21 to 30 years)	.887***	.888***	.891***	.714***	.722***	.720***
	(.087)	(.087)	(.088)	(.026)	(.026)	(.026)
Age (31 to 40 years)	.714***	.717***	.721***	.607***	.607***	.604***
	(.094)	(.094)	(.094)	(.026)	(.026)	(.026)
Female	−.782***	−.768***	−.771***	−.579***	−.563***	−.565***
	(.094)	(.093)	(.095)	(.030)	(.030)	(.030)
Health Issue/Disability	−.449***	−.454***	−.448***	−.823***	−.819***	−.821***
	(.099)	(.100)	(.103)	(.048)	(.047)	(.047)
Interactions						
Age1–10 x Female	.516***	.506***	.508***	.375***	.359***	.362***
	(.114)	(.114)	(.115)	(.035)	(.035)	(.035)
Age11–20 x Female	.584***	.575***	.581***	.410***	.395***	.397***
	(.100)	(.100)	(.101)	(.033)	(.032)	(.033)
Age21–30 x Female	.379**	.379**	.380**	.278***	.268***	.270***
	(.109)	(.108)	(.109)	(.033)	(.033)	(.033)
Age31–40 x Female	.318**	.314**	.314**	.194***	.194***	.197***
	(.119)	(.118)	(.119)	(.036)	(.036)	(.036)
Occupation[b]						
Unskilled Agriculture		.152	Fixed		.187***	Fixed
		(.116)			(.036)	
Unskilled Manual/Domestic		.245*	Fixed		.340***	Fixed
		(.103)			(.041)	
Semiskilled Agriculture		.603***	Fixed		.235***	Fixed
		(.120)			(.058)	
Semiskilled Manual		.229*	Fixed		.402***	Fixed
		(.112)			(.042)	
Skilled Domestic		.232*	Fixed		.395***	Fixed
		(.101)			(.042)	
Skilled Manual/Driver		.559***	Fixed		.551***	Fixed
		(.079)			(.024)	
Controls						
Year	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
County	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Owner	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered
R-Squared[c]	.398	.401	.402	.429	.435	.436
Number of Cases		6,658			50,982	

[a]Reference category for age is 41 years or older; variable is subject to multiple imputation.
[b]Includes 68 detailed occupations; reference is no trade.
[c]Average model fit across 20 imputations.
*$p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Table 3. Regression Models for (Logged) Monthly Wages of Blacks in the U.S. South, 1831 to 1867

	Wages (Antebellum Period)			Wages (Postbellum, Upper South)		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Demographics						
Age (1 to 10 years)[a]	−.741***	−.730***	−.730***	−1.243***	−1.258***	−1.235***
	(.129)	(.130)	(.130)	(.283)	(.286)	(.290)
Age (11 to 20 years)	−.454***	−.444***	−.444***	−.558***	−.566***	−.570***
	(.076)	(.077)	(.077)	(.116)	(.121)	(.129)
Age (21 to 30 years)	−.297***	−.287***	−.287***	−.228*	−.240*	−.250*
	(.045)	(.045)	(.045)	(.088)	(.095)	(.106)
Age (31 to 40 years)	−.182***	−.173***	−.173**	−.131	−.143	−.159
	(.041)	(.042)	(.042)	(.085)	(.096)	(.109)
Female	−.811***	−.803***	−.803***	−.577**	−.557**	−.526**
	(.038)	(.038)	(.038)	(.160)	(.165)	(.175)
Interactions						
Age1–10 x Female	.059	.051	.051	.352	.336	.452
	(.066)	(.066)	(.066)	(.355)	(.363)	(.371)
Age11–20 x Female	.079	.070	.070	.192	.188	.213
	(.068)	(.068)	(.068)	(.198)	(.201)	(.204)
Age21–30 x Female	.041	.033	.033	.016	.023	.046
	(.064)	(.064)	(.064)	(.173)	(.180)	(.194)
Age31–40 x Female	.026	.018	.018	.001	.007	.029
	(.055)	(.055)	(.055)	(.178)	(.184)	(.198)
Occupation[b]						
Unskilled Agriculture					.093	Fixed
					(.077)	
Unskilled Manual/Domestic					.014	Fixed
					(.072)	
Semiskilled Agriculture					.414*	Fixed
					(.206)	
Semiskilled Manual					.432**	Fixed
					(.165)	
Skilled Domestic					.107	Fixed
					(.140)	
Skilled Manual/Driver		.875***	Fixed		.841***	Fixed
		(.081)			(.185)	
Controls						
Period of Hire (months)	.019*	.019*	.019*	−.013***	−.013***	−.013***
	(.009)	(.009)	(.009)	(.002)	(.002)	(.002)
Year	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
County/State[c]	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Owner/Employer	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered
R-Squared[d]	.328	.330	.330	.585	.601	.636
Number of Cases		16,921			1,372	

[a]Reference category for age is 41 years or older; variable is subject to multiple imputation.
[b]Includes seven occupations in antebellum era and 28 occupations in postbellum era; reference category is no trade.
[c]Postbellum fixed-effects are included for states as a whole.
[d]Average model fit across 20 imputations.
*$p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

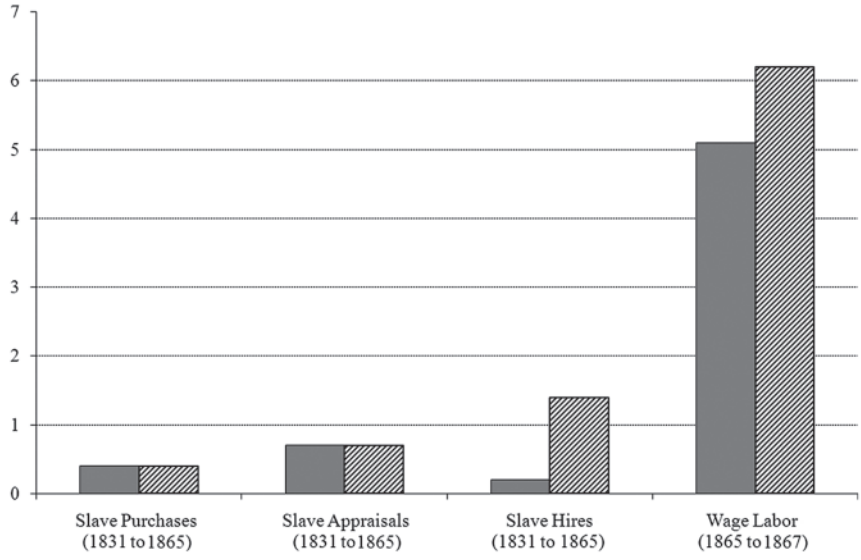

Figure 2. Variance (%) in Price of Black Labor Explained by Occupations
Note: Difference between Model 1 and Model 3. Solid bars correspond to raw data; bars with diagonals correspond to matched samples.

model adds more detailed fixed-effects for workers' occupational labels.

Results support the hypothesis that occupational skills account for the greatest variation in the value of labor in wage labor markets. Among free wage laborers and slave hires, the most skilled manual workers were valued around 2.4 times the rate of workers with no known skills, and this differential in valuation is only 1.7 times for slave purchases and appraisals (Model 2).[16] The differences are more stark when we consider the total variance explained by occupations (Model 3). While bondsmen's and women's occupations explain .7 percent (or less) of the variance in labor pricing for slave purchases, appraisals, and hiring, they account for over 5 percent of the variance in wages for the free labor contracts signed under the auspices of the Freedmen's Bureau in the DC and Alexandria branches (see Figure 2, gray bars). Note that this is not driven by the lack of a complex occupational division of labor under chattel slavery. As economic historians (Fogel 1989) and sociologists (Ruef and Fletcher 2003) have emphasized, midsized and large plantations displayed extensive occupational differentiation in the antebellum period, with status distinctions ranging from overseers and skilled artisans to domestic servants, semiskilled workers, and common laborers (both agricultural and nonagricultural). Indeed, the probate records analyzed in Table 2 reveal nearly 70 occupational labels. Nevertheless, this occupational division of labor does not translate systematically into differentiated valuation of occupational skills.

Further analysis suggests that the timing of skill acquisition over a slave's life course deviates from the pattern anticipated by the logic of human capital investment. In the purchase and appraisal markets between 1831 and 1865, the distribution of slaves in skilled occupations (e.g., artisans, overseers, domestics, and animal handlers) peaked among workers between their mid-30s and mid-50s (see Figure 3). By modern standards, acquisition of skills was delayed, particularly when one considers that the life expectancy of Southern slaves was only 36 years in 1850 (Fogel and Engerman 1974). When the same distribution is plotted for Southern blacks based on 1870 Census data, a rather different

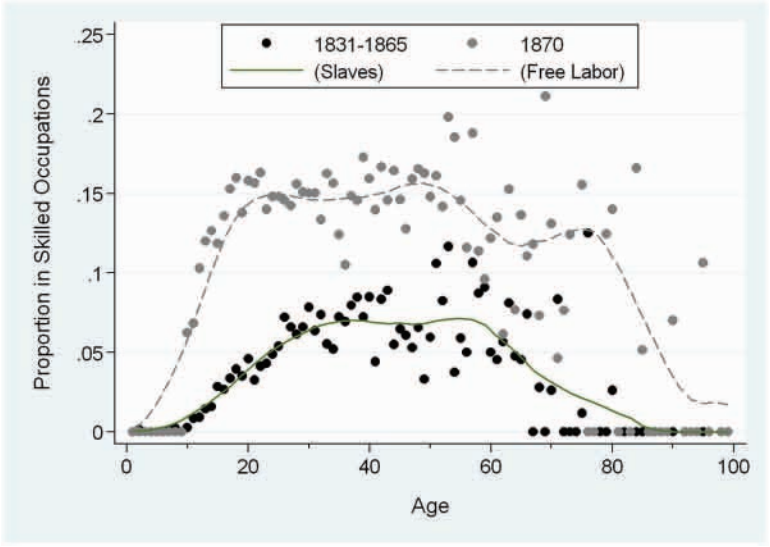

Figure 3. Age Distribution of Skilled Black Labor
Note: Skilled occupations include all work activities aside from unskilled agricultural and general labor. Dots indicate raw proportions; lines indicate estimates obtained via local polynomial smoothing.

pattern emerges.[17] Apprenticeship tended to occur by age 20; thereafter, the proportion of free black workers involved in the skilled trades (around 15 percent) was fairly stable until age 50. The pattern for free labor is thus consistent with the tenets of human capital investment: skills are acquired early and opportunity costs are amortized over a lifetime.

The effect of demographic characteristics on the price of black labor can be seen most clearly in plots by age category and gender (see Figure 4).[18] For men, both purchases and appraisals in the antebellum slave market reveal a curvilinear trend, with prices rising slightly until these workers reached their 20s and then falling off. In Figure 4a, we see a notable deviation between these two markets for black boys under the age of 11 years, who were appraised at roughly the same price as slaves in the oldest age category (over 40 years), but whose purchase prices reveal a 125 percent price premium over that same category. By contrast, we see discounting for young males in the markets for slave hires and wage labor. In the antebellum South, boys hired on a short-term basis were paid half the rate paid for mature slave hires, and the youngest freedmen in the postbellum period received very low wages (roughly 30 percent) compared to workers older than 40 years.

For black males older than 10 years, the plot suggests a more muted impact of age on labor prices in markets with short-term employment contracts as opposed to markets involving chattel slavery. The price for hired or wage labor varies little between adolescence (with monthly rates at slightly under 70 percent of the reference category) and mature adulthood, consistent with the hypothesis that these markets will exhibit weak statistical discrimination by age. We see the same pattern for black women, whose wage and hire rates were relatively flat from adolescence until middle age (Figure 4b).

The age–price profile for female slaves is especially peaked in adolescence. While male slaves in their teens and 20s were priced at 80 to 140 percent more than mature males, female slaves in their teens and 20s were priced at 170 to 300 percent more than mature females. The interaction terms shown in Table 2 indicate that this gender difference is highly

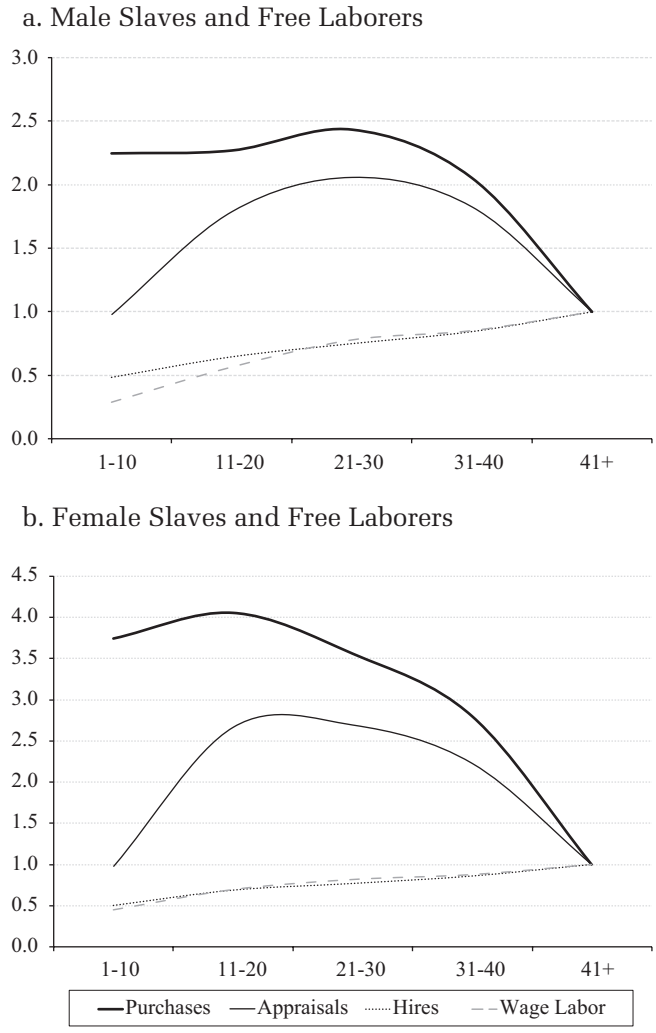

Figure 4. Relative Price of Black Labor by Age Category
Note: Prices are relative to reference category (=1.0) for slaves or free laborers who are older than 40 years.

statistically significant. Although some scholars have questioned the assertion that considerations of slave breeding affected the market for (and demography of) slaves, the estimates shown here reveal a price premium for women who were entering their prime childbearing years. The plots also show a gap between purchase and appraised prices of female slaves that attenuates over the lifecycle, supporting the argument that exploitation (sexual or otherwise) of girls and young women may have led to price premiums in markets with limited third-party monitoring.

The main effects of gender reveal another important difference in valuation across labor markets. Among mature women, whose fecundity no longer figures in price or wage calculations, price discrimination vis-à-vis male workers is most pronounced in labor markets that are weakly regulated and unfree.

Thus, female slaves over 40 years old were valued at only 46 cents on the dollar relative to male slaves in the antebellum purchase market and 45 cents on the dollar in the antebellum hire market (Tables 2 and 3). On the other hand, mature female workers in the postbellum wage market regulated by the Freedmen's Bureau received 59 cents on the dollar relative to male workers.

Does Valuation by Age and Gender Reflect Statistical Discrimination?

Although the age–price profiles are consistent with the intuition that statistical discrimination was especially pronounced in slave markets, it is equally plausible that purported effects of age (and age–gender interactions) were simply correlated with observable features of individual slaves, such as work experience and fertility. If so, slave traders and buyers would not have needed recourse to stereotyping to infer average productivity and fecundity, but could rely on information available from direct inspection, appraisals, or past relations with slaves and their owners. To probe this alternative explanation, I analyzed bills of sale from the New Orleans slave market, which offer more detailed data on histories of buyers, sellers, and slaves than are available in the probate records (see Table 4).

One alternative to the mechanism of statistical discrimination holds that slave traders and buyers could acquire information on a slave's specific experience and skills if they lived in the same locale as the slave's owner. Such collocation would offer opportunities for potential buyers to observe slaves, fraternize with their masters, and ensure slaves' abilities matched the local climate and customs. Based on sales prices in New Orleans, it appears that slave traders were willing to pay a small premium (5 percent in Model 2) when a seller originated from the same Louisiana parish (or state outside of Louisiana) as the buyer. But even with inclusion of this variable, the amount of variance in price explained by information on worker skills (occupational or otherwise) was only .9 percent, far less than that observed in the wage labor market after the Civil War. Moreover, when we separate the subsamples based on buyer–seller collocation (Models 3 and 4), there is no evidence that price discrimination on age was significantly weaker when the buyer and seller originated from the same locale.

Another aspect of the argument applies to female slaves exclusively. If age was used as a basis for statistical discrimination with respect to fecundity, then its correlation with price should attenuate when buyers of labor power were able to observe fertility directly (particularly when dependent slave children were being sold with their mothers). As estimates in Table 4 suggest, this is the pricing pattern we find in the New Orleans slave market. When women without children were sold, those in their teens and 20s garnered a price 50 to 60 percent greater than that of female slaves over the age of 30 (Model 5). But for women with children, there was no significant price discrimination by age. Price premiums in the market applied instead to the number of children a female slave had borne (Model 6). More generally, the pattern suggests that aggregate samples—that combine slaves with and without children—may underestimate the extent to which statistical age discrimination influenced the valuation of slave women in the absence of direct evidence on fertility.

Was the Valuation of Wage Labor Different in the Lower South?

Coefficients in Table 5 indicate there was little difference in the valuation of wage labor between the sample of postbellum contracts signed in Alexandria and Washington, DC (Upper South) and those issued for the smaller sample of freedmen in Louisiana, Arkansas, and Mississippi (Lower South). Both sets of estimates suggest weak price discrimination by age, gender, and the interaction of these demographic variables, particularly for adolescent and adult workers. By comparison, the variance explained by occupational skills is substantial. In payrolls of wage plantations in the Lower South, workers were ranked by

Table 4. Regression Models for (Logged) Purchase Price of Slaves in the New Orleans Slave Market, 1831 to 1862

	All Slaves (Individual Sales)		Buyer and Seller in Different Locale	Buyer and Seller in Same Locale	Women without Children	Women with Children
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Demographics and Health						
Age (1 to 10 years)[a]	–.317**	–.308**	–.311**	–.311*		
	(.102)	(.103)	(.094)	(.132)		
Age (11 to 20 years)	.252***	.259***	.192**	.259***	.440***	–.104
	(.044)	(.045)	(.068)	(.064)	(.037)	(.068)
Age (21 to 30 years)	.428***	.431***	.325***	.487***	.476***	–.114
	(.039)	(.041)	(.070)	(.057)	(.036)	(.055)
Female	–.250***	–.258***	–.381**	–.215**		
	(.051)	(.052)	(.108)	(.069)		
Health Issue/No Guarantee	–.339***	–.331***	–.412***	–.294***	–.290***	–.131
	(.031)	(.032)	(.051)	(.036)	(.046)	(.079)
Number of Children						.169***
						(.032)
Interactions						
Age1–10 x Female	.005	.027	.096	.101		
	(.126)	(.125)	(.169)	(.146)		
Age11–20 x Female	.168**	.177**	.279*	.164*		
	(.059)	(.059)	(.115)	(.078)		
Age21–30 x Female	.033	.038	.163	–.011		
	(.055)	(.057)	(.121)	(.072)		
Information on Skills						
Buyer and Seller From Same Locale		.054*			.066#	–.067
		(.022)			(.037)	(.076)
Occupation[b]		Fixed	Fixed	Fixed	Fixed	Fixed
Controls						
Year	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Parish/State of Origin	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Seller	Clustered	Clustered	Clustered	Clustered	Clustered	Clustered
R-Squared	.567	.576	.662	.532	.575	.605
Number of Cases	2,114		940	1,174	988	264

[a]Reference category for age is 31 years or older.
[b]Includes 25 occupational categories.
# $p < .05$ (one-tailed test); * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

occupational class and ability, ranging from 1st-class foremen to 4th-class laborers. When this variable is entered as a set of dummy indicators, it alone explains 47 percent of the variance in wages for the second model shown in Table 5.

Can Selection Biases Explain Differences across Labor Markets?

A key caveat in interpreting these findings remains the issue of selection bias. It is well known, for instance, that children and

Table 5. Regression Models for Wages of Blacks in the Postbellum Lower South, 1865 to 1867

	Model 1	Model 2
Demographics		
Age (11 to 20 years)[a]	–.211	.000
	(.186)	(.091)
Age (21 to 30 years)	.039	.050
	(.134)	(.098)
Age (31 to 40 years)	–.016	.062
	(.142)	(.100)
Female	–.346#	–.280*
	(.195)	(.132)
Interactions		
Age11–20 x Female	.156	.102
	(.192)	(.131)
Age21–30 x Female	.075	.070
	(.201)	(.146)
Age31–40 x Female	.069	.043
	(.353)	(.191)
Occupation/Skill Rating[b]		
First Class (Foreman)		1.530***
		(.217)
First Class (Other)		1.454***
		(.194)
Second Class		1.197***
		(.203)
Third Class		.850**
		(.218)
Fourth Class		.665**
		(.212)
Controls		
Period of Hire (months)	.021	.008
	(.016)	(.014)
Year	Fixed	Fixed
County	Fixed	Fixed
Owner	Clustered	Clustered
R-Squared[c]	.319	.790

Note: $N = 218$ cases.
[a]Reference category for age is 41 years or older; variable is subject to multiple imputation.
[b]Reference category is no occupational class/no skill.
[c]Average model fit across five imputations.
# $p < .05$ (one-tailed test); * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

adolescents who were apprenticed to white employers in wage labor arrangements after the Civil War were typically either orphans or compelled by destitute parents to hire themselves out (Farmer 1999). It is quite possible that the valuation of such child laborers is not comparable to that of young slaves in the antebellum period, owing to differences in skills and demographic composition. To guard against such selection biases, I reestimated all of the models after matching workers across labor markets on the basis of sociodemographic characteristics.

For the most part, the amount of variance explained by occupations remains similar

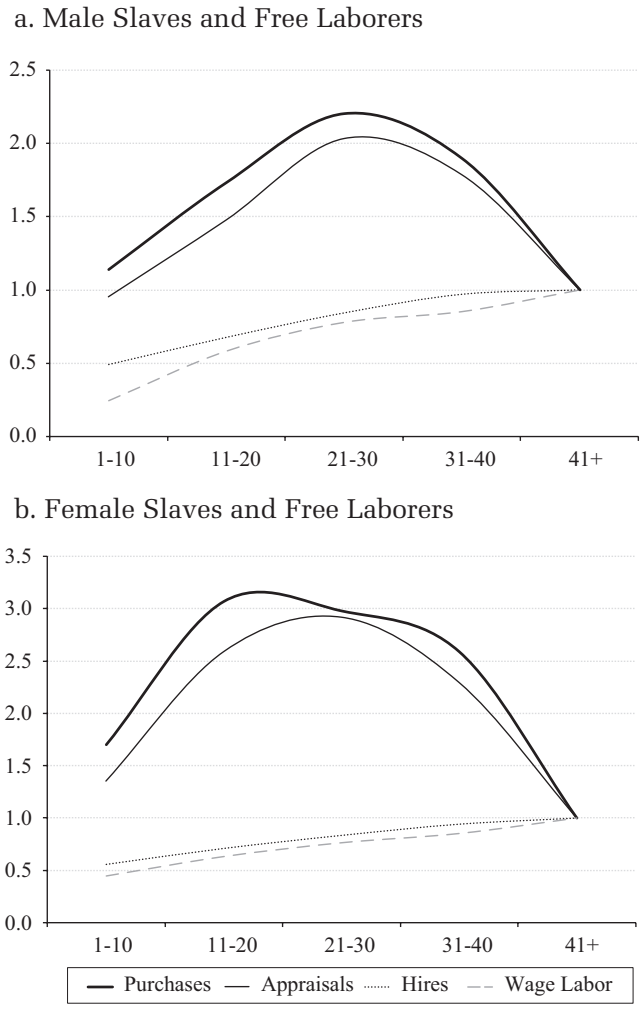

Figure 5. Relative Price of Black Labor by Age Category, with Matched Samples
Note: Prices are relative to reference category (=1.0) for slaves or free laborers who are older than 40 years.

when samples of workers are matched by gender, age, and occupational skills (see Figure 2, bars with diagonals). A notable exception is the antebellum market for slaves who were hired out. The variation in pricing explained in the sample matched by propensity scores (1.4 percent) is greater than that observed in the raw data (.2 percent), suggesting that selection biases may reduce the estimated effect of occupational skills in this market. The larger effect of occupation on prices dovetails with historians' claims that the practice of hiring out "contributed to the upgrading of slave labor" and represented an "incipient stage of wages" (Eaton 1960:678), with returns to skill possibly explained by the practice of allowing hired workers to select their own jobs and the greater diversity of trades that were staffed by hired slaves.

Using samples matched to the data on slave appraisals, Figure 5 replicates the age–price profiles for black men and women following a propensity score analysis. One additional difference stands out compared to results shown

in Figure 4. Age-dependent price differences between the purchase market for slaves and the appraisal market largely disappear after the samples are matched. Insofar as the purchase market for slaves reflected the exploitation of young women and children, appraisers may have built the value of such exploitation into their own assessments. The remaining variation across labor markets in the age–price profile centers around the distinction between short-term wage contracts (whether they involve slave or free labor) and the perpetual ownership of labor.

DISCUSSION

What was the fundamental innovation of the free labor market that replaced the plantation system of slave labor in the years following the American Civil War? The greatest ambitions of the Freedmen's Bureau held that the rise of free labor would produce a shift in moral order, in which the barbaric and inefficient habit of Southern slaveholding would yield to more enlightened tendencies. Indeed, the civilizing power of the market was touted not only by General Otis Howard (the head of the Bureau) and his agents, but also by Northern abolitionists, such as the Reverend Edward Kirk.[19] In the period immediately after emancipation, many emancipated slaves believed that Southern landowners would change their mindset and were prepared to negotiate with them in good faith. Whether such hopes were advanced out of idealism or necessity, they were bound to be met with disappointment. Few former slaveholders bought into the moral impetus behind the free labor ideology; instead, the prevalent view among Southern employers was that former slaves would need to work "as they had always done" (Hahn et al. 2008:111).

A more modest claim for the rise of a free labor market was that it would create a subtle shift in employers' and workers' motivations, primarily owing to the absence of coercion. In the *Wealth of Nations*, Adam Smith argued that the essential problem of unfree labor resided in the misaligned interests of employer and worker. "The experience of all ages and nations," Smith believed, "demonstrates that the work done by slaves, though it appears to cost only their maintenance, is in the end the dearest of any . . . whatever work [the slave] does beyond what is sufficient to purchase his own maintenance can be squeezed out of him by violence only." The slave owner's interests were compromised, in this theory, by a love of domination, which led him to "prefer the service of slaves to that of freemen" (Smith 1776:471). Even if some of the market's civilizing tendencies were absent, the removal of coercion would thus improve workers' productivity and focus employers' motivations on pecuniary considerations.

Rather than shifts in morality or coercion, the argument presented here suggests that other institutional conditions were more salient to the valuation of emancipated labor. Historically, both free wage labor and other markets tended to involve some element of duress in which workers' ultimate source of power was the ability to withdraw labor power, whether by reduction of effort, flight, or legal termination of contracts (Steinfeld 2001). The Freedmen's Bureau itself, for instance, acted as much to discipline black laborers as it did to limit recourse to physical punishment among Southern planters (Goldberg 2006). The fundamental transformation in the labor market interface, which soon had to be accepted by both employers and workers, relied instead on a shift in the duration of control over labor power and the oversight of a third (regulatory) body when labor contracts were signed.

For African Americans, these institutional conditions yielded a new logic of compensation during Reconstruction. In the antebellum era, occupational skills explained relatively little of the variance in the price of Southern slaves, although they accounted for some variation in the wages of equivalent slave hires. Investment in occupational skills occurred relatively late in the life course and some Southern observers even suggested that masters "leave the trades and arts [entirely] to the white population" (Breeden 1980:26–27).

Price discrimination by age and gender, on the other hand, was more pronounced in the market for slaves. Under the Freedmen's Bureau, apprenticeship in the skilled crafts tended to occur by the time black workers reached their early 20s and differences in contractual wages were more clearly correlated with those skills. The latter process is consistent with the logic of human capital, in which opportunity costs are borne early in the life course and justified by subsequent differentials in earnings, while the former is consistent with the logic of statistical discrimination.

A distinctive contribution of this study, therefore, is to suggest that the mechanisms of valuation emphasized within labor economics may apply only under certain institutional scope conditions. It is now common sociological wisdom to suggest that labor market processes, such as job search and wage allocation, are embedded within a context of interpersonal (Granovetter 1985) and institutional relationships (Brinton and Kariya 1998), but the institutional foundations of labor markets have often gone unexamined, particularly from a historical perspective. Through comparative analysis, it is possible to recover the unique conditions that differentiate free labor from its counterparts and to develop a more relational account of labor valuation (Tilly and Tilly 1998).

Such comparative analysis is remarkably rare in existing scholarship on labor markets. The tendency among sociologists has been to focus on inequality within formally free labor markets, while historians and economists tend to consider the valuation of unfree labor in isolation (Johnson 1999). As a consequence, past empirical studies of markets for unfree labor, such as the New Orleans slave market, have suggested an economically rational market with "a strong incentive for owners to invest in the human capital of their slaves" (Pritchett and Hayes 2011:18). When these markets are considered alongside transactions for wage labor, the investment in occupational skill is less compelling and the rationality of the market appears to be directed toward evaluation of different attributes (e.g., age, reproductive capacity, and health) than those highlighted in labor transactions after emancipation.

Comparative analysis may also illuminate the ongoing problems posed by unfree and unregulated labor markets for the allocation of workers and valuation of work today. The transition to formally free labor was first studied extensively in the nineteenth century by observers such as Marx and Weber, who used examples from ancient and late medieval societies to illuminate processes of abolition that they observed as contemporaries (Nippel 2005). Aside from the moral failings of slavery, serfdom, and unregulated labor, Marx and Weber recognized that these forms of labor organization presented fundamental problems to the economic and social development of the pre-modern world. Because unfree and informal labor continues to persist, it is essential that sociologists document the implications that these markets may hold for investment in skills, discrimination against various classes of workers, and intergenerational legacies of forced labor.

APPENDIX

This study uses logical and propensity score matching to reduce selection biases that have historically affected different pools of black workers. I first matched the samples geographically by limiting transactions to those conducted in a few Southern states that served as centers of the slave trade since the early American Republic (i.e., Louisiana, Maryland, and Virginia).[20] I constructed a core sample by beginning with 701 transactions between 1831 and 1863, with information on both slave appraisals and sales prices for the same individuals. I then linked slave hires and wage laborers who were recruited in the same states to these records based on propensity score matching with a Mahalanobis metric (Guo and Fraser 2010). The algorithm draws the hired worker or wage laborer who most closely matches a slave observed in the purchase market based on gender, age, and occupational skill. The difference between workers is defined by the Mahalanobis distance d, where $\mathbf{u}$ and $\mathbf{v}$ are values of the variables to be matched for a slave and hired/wage worker, respectively, and $\mathbf{C}$ is the sample covariance matrix for the matching variables from the full sample of laborers outside the slave purchase market:

$$d = (\mathbf{u} - \mathbf{v})^T \mathbf{C}^{-1} (\mathbf{u} - \mathbf{v})$$

Table A1 shows the resulting reduction in standardized bias for age, gender, and occupational skill, computed as $100(1 - b_M/b_I)$, where b_I is the initial difference in sample means and b_M is the difference after matching (Rosenbaum and Rubin 1985). The reduction in bias for all samples and covariates is substantial, ranging from 79 to 100 percent. After matching, *t*-statistics comparing the sample of wage workers and slave purchases suggest no statistically significant differences on these characteristics. For the sample of slave hires, differences in age composition persist, but covariate balance is improved considerably.

Table A2 displays coefficient estimates for the valuation of black workers after matching samples (model specifications correspond to Model 3 in Tables 2 and 3). I computed weights for each observation to make the pool of hired slaves and wage laborers more representative of the population of black workers as a whole. Let $\hat{e}(x)$ be a propensity score indicating the probability that a given individual will be hired out (antebellum period) or sign a wage contract (postbellum period), based on a logistic regression for each outcome that considers a combined sample of

Table A1. Percent Reduction in Standardized Bias from Logical and Propensity Score Matching

	Slave Appraisals	Slave Hires	Wage Labor
Worker Attributes			
Age	100%	79.3% (t = 10.6)	96.7% (t = .50)
Female	100	100.0 (t = .00)	100.0 (t = .00)
Skilled Labor[a]	100	100.0 (t = .00)	100.0 (t = .00)

Note: All samples are matched to data on slave sales.
[a]All workers with occupational skills that do not involve field work or common labor are defined as skilled.

Table A2. Regression Models for Valuation of Black Labor, with Matched Samples

	Prices (Logged)		Wages (Logged)	
	Slave Purchases	Slave Appraisals	Slave Hires	Wage Labor
Demographics and Health				
Age (1 to 10 years)[a]	.126	–.051	–.712***	–1.410***
	(.169)	(.152)	(.179)	(.245)
Age (11 to 20 years)	.548***	.392***	–.385*	–.543**
	(.118)	(.113)	(.157)	(.164)
Age (21 to 30 years)	.793***	.713***	–.174	–.248
	(.118)	(.122)	(.144)	(.134)
Age (31 to 40 years)	.636***	.580***	–.033	–.162
	(.130)	(.138)	(.140)	(.157)
Female	–.696***	–.630***	–.856***	–.500*
	(.153)	(.136)	(.101)	(.199)
Health Issue/Disability	–.447***	–.511***		
	(.120)	(.118)		
Interactions				
Age1–10 x Female	.398	.352	.126	.604
	(.222)	(.184)	(.137)	(.418)
Age11–20 x Female	.571***	.559***	.051	.079
	(.163)	(.144)	(.136)	(.275)
Age21–30 x Female	.296	.358*	–.013	–.018
	(.181)	(.174)	(.119)	(.212)
Age31–40 x Female	.314	.250	–.031	–.000
	(.197)	(.189)	(.136)	(.233)
Occupation	Fixed	Fixed	Fixed	Fixed
Controls				
Period of Hire (months)			.067**	–.013***
			(.020)	(.003)
Year	Fixed	Fixed	Fixed	Fixed
State	Fixed	Fixed	Fixed	Fixed
Owner/Employer	Clustered	Clustered	Clustered	Clustered
R-Squared[b]	.584	.569	.480	.556
Number of Cases	701	701	4,216	865

[a]Reference category for age is 41 years or older; variable is subject to multiple imputation.
[b]Average model fit across five imputations.
*$p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed tests).

Table A3. Classification of Occupational Skill Level

Skill Level	Specific Occupations and Trades
Unskilled Agriculture	Fieldhand, Field Slave
Unskilled Manual/Domestic	Servant (house), Tool Pusher, Washerman/woman
Semiskilled Agriculture	Calf Driver, Cattle-Minder, Fisherman, Gardener, Herdsman, Hunter, Oyster Catcher, Ploughman
Semiskilled Manual[a]	Axman, Boatman, Coachman, Drayman, Groom, Hostler, Jockey, Railroad Worker, Sawyer, Skinner, Stevedore, Tanner
Skilled Domestic	Butcher, Candy Maker, Cook/Baker, Fineryman, Hairdresser, Hawker/Salesman, Midwife, Nurse, Seamstress, Tailor, Weaver
Skilled Manual[b]	Blacksmith, Boilermaker, Brassmoulder, Carpenter, Cobbler, Cooper, Mason, Mechanic, Miller, Painter, Plasterer, Printer, Refiner, Ropemaker, Shipbuilder, Shingler, Shoemaker, Wheelwright

[a]Category also includes apprentices to skilled manual trades.
[b]Category also includes supervisors under various titles (e.g., driver, foreman, head man, overseer, steward, and superintendent).

slave purchases and hires or slave purchases and wage contracts, respectively. Then the weight for hires and wage labor can be defined as $w = 1 / \hat{e}(x)$ (Guo and Fraser 2010). For the remaining sample of slave purchases and appraisals, I calculated the weight as $w = \hat{e}(x) / (1 - \hat{e}(x))$.

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Notes

1. For simplicity, these distinctions are presented as polar opposites, although historical observers have often imagined a continuum of employment relationships along each dimension. Thus, English workers employed under long contracts in the nineteenth century were said to be "bound like slaves to the employers," while those hired under short contracts were considered to be "free" labor (Steinfeld 2001:13).
2. Judicial sales also offered locales for slave traders to meet and obtain important information regarding price trends (Tadman 1996).
3. As Baron and Hannan (1994) argue, a common mistake in sociological treatments of human capital is to simply equate the concept with years of education or training in a regression model. Proper application of human capital theory requires that an attribute be "regarded as an investment for which there is a capital market and opportunity cost" (Baron and Hannan 1994:1124). Moreover, for there to be sustained rents from human capital investment, there must be barriers that prevent others from readily acquiring the same education or training.
4. Fogel and Engerman agree that this feature of skill acquisition under chattel slavery deviates markedly from the conditions of free labor markets. Under the typical logic of human capital investment, "the earlier an investment is made in occupational training, the more years there are to reap the returns on that investment" (Fogel and Engerman 1974:150). Under slavery, however, the slaveholder would "treat entry into skilled occupations as a prize" (Fogel and Engerman 1974:150).
5. In 1860, 21 out of 34 states had adopted laws against interracial sex, although enforcement and penalties varied considerably (Robinson 2003).
6. Some Southern cities did regulate slave hires, but the extent and effectiveness of oversight was limited. New Orleans, Mobile, Savannah, and Charleston passed badge laws that credentialed a subset of slaves to hire themselves out for specified trades (Wade 1964). However, these laws served primarily as a means to raise tax revenue from slave owners and limit slave autonomy, not to produce occupational closure.
7. Tadman (1996) estimates that the typical slaveholder in the Upper South made a sale every 10 to 12 *years*, far longer than the average 10- or 11-month contract observed in the antebellum and postbellum hire markets.
8. This constraint removes roughly 10 percent of the cases from the original data on slave hires (Fogel and Engerman 2006a) and slightly under 25 percent of the cases on sales and appraisals (Fogel and Engerman 2006b). The resulting antebellum datasets, along with the postbellum dataset on wage labor

contracts, can be accessed at http://www.soc.duke.edu/~mr231/projects.

9. For the sake of model parsimony, this approach assumes that the deviation of local labor market prices from the regional average in the South only changes over time as a function of the local workforce's changing demography. In analyses of postbellum transactions, where all contracts were signed in either Washington, DC, or Alexandria, VA, I also control for the location (state) where workers were to be employed.
10. Specifically, these data include a 10 percent systematic sample of payrolls and contracts in St. Martin and St. Mary's parishes in Louisiana (Freedmen's Bureau 1863–1872), as well as the complete payrolls of the McGavock plantation in Arkansas and the Anderson plantation in Mississippi.
11. By missing entirely, I mean that the archival records do not have information on the exact age of a worker nor the worker's approximate life stage (e.g., boy, girl, or old). Listwise deletion of cases with missing age information does not produce findings that are substantively different from those obtained with multiple imputation.
12. As described in Fogel and Engerman (2008), the data include 5 percent samples in 1835, 1840, 1845, 1850–1855, and 1860, and 2.5 percent samples for other years during the study period.
13. Earlier cases of slave emancipation tended to occur on a piecemeal basis around federal military facilities, especially in tidewater Virginia and North Carolina (Berlin et al. 1993).
14. In contrast to the antebellum regime, the understanding of child and female labor also displays a historical shift in the Freedmen's Bureau documents. Greene suggests that many freedmen will "have their wives, children, aged parents, dependent upon Government for shelter and rations" (Berlin et al. 1993: 316). In his eyes, this was hardly an unreasonable arrangement, as long as black children attended common school, women engaged in domestic trades, and freedmen of means (those earning more than $25 per month) remitted a tax in support of the aged, indigent, infirm, and other dependents.
15. The question is especially salient because the preponderance of wage labor at Freedman's Village was limited, despite Elias Greene's aspirations. In September of 1863, only 150 of the camp's 900 residents were able-bodied, employable men (Berlin et al. 1993). Repeated efforts to move residents into private employment were met with mixed success.
16. Note, however, that some occupations that were valued during the antebellum period, such as domestic service, become devalued and feminized after the Civil War (see also Branch 2011).
17. Statistics for 1870 are based on the IPUMS 1.2 percent sample of all blacks in Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia (Ruggles et al. 2010). Given the relatively small number of wage labor contracts in our Freedmen's Bureau sample, it is not possible to reliably construct a corresponding distribution for the immediate postbellum period.
18. The plots in Figures 4a and 4b control for occupations (i.e., they are based on the coefficient estimates in Tables 2 and 3, Model 3).
19. Following Albert Hirschman, Fourcade and Healy (2007) identify a long legacy of claims among liberal economists associating markets with such civilizing virtues as honesty, respect, cooperation, creativity, and freedom.
20. Tadman (1996) estimates that Virginia and Maryland were the only Southern states that were significant net exporters of slaves from the 1790s through the 1850s. The coastal trade between the Chesapeake region and Louisiana was especially prominent, given the heavy labor demands of the sugar crop.

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